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ABSTRACT

Articles in this volume of the Journal of the Society for Accelerative Learning and Teaching (SALT) include the following: "Accelerated Learning Components in Elementary Classrooms"; "Ball-Stick Bird: Teaching with the Story Engram"; "A SALT Pilot Study in College Developmental Mathematics"; "Black Education in South Africa: Issues, Problems and Perspectives"; "Towards the Mountain: Characteristics and Implications of the South African UPTTRAIL Pilot Project"; "Training Music Sight-Reading and Perfect Pitch in Young Children, as a Way To Enhance Their Intelligence"; "On the Inner Relationship between Qigong and SALT"; "The Use of Time Line in Teaching"; "Breaking Down the Walls of the Self-Contained Basic Writing Course"; "An Accelerated Learning Approach To Teaching Critical Analysis"; "8 Stories and Tests"; and "A Positive Look at SALT Techniques in the National Research Council's Enhancing Human Performance." (JL)

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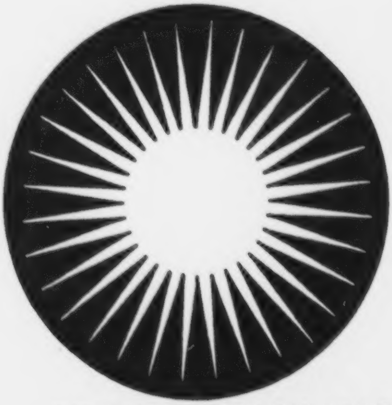

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Accelerated Learning Components in Elementary School Classrooms[*]

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Abstract. This article reports the results of 6 case histories conducted to evaluate the use Accelerated Learning components in elementary public school settings. Specific focus was upon six public school teachers and their implementation of six Accelerated Learning components: Authority, Infantilization, Double Planeness, Intonation, Rhythm and Concert Pseudopassiveness. Qualitative research methods were used for purposes. The study was guided by one central question: What is the teacher experiencing as he/she implements the components in the classroom? Data were gathered through the employment of field study techniques of interviews and observations. The finding of the data were reported in case studies of each teacher and analyzed through the lens of four assumptions: 1.) The component was used by the teacher and observed by the researcher; 2.) the teacher could articulate the component's definition and state its frequency of use; 3.) The component was appropriate for the age level in the teacher's classroom; and 4.) The teacher could give reasons for implementing the component into his/her program.

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[*] This paper is a condensation of her Ph.D. dissertation at Union University, Ohio, 1988, and presented at the 1988 SALT Conference, Phoenix, AZ.

Analysis of the data led to some conclusions, the most important of which was that each teacher had incorporated and made modifications to the components that best fit their personal as well as professional style of teaching. Suggestions for future research were made.

Introduction

This study investigated the implementation of six Accelerated Learning components by elementary public school teachers. It was designed to determine the daily experiences of classroom teachers using Accelerated Learning.

The methodology of Dr. Georgi Lozanov (1979) created considerable interest in North America during the 1970's. His work with Suggestology first became widely known in the United States through the publications of Ostrander and Schroeder (1970, 1979). Within the last 15 years, several educators have experimented with Lozanov's methods, while others have adapted some of his techniques to classroom practices. Some programs which have evolved from researching Lozanov's work are referred to in the literature by names such as: Suggestive Accelerative Learning and Teaching (SALT) (Schuster, Benitez-Bordon & Gritton, 1976); The Lozanov method (Schleicher, 1984); Acquisition Through Creative Teaching (ACT) (Dhority, 1984); Superlearning (Ostrander & Schroeder, 1979); Accelerating Learning (Prichard & Taylor, 1980); Accelerated Learning (Rose, 1986); Learning in New Dimensions (Schmid, 1982); Optimalearning (Barzakov, 1982) and Whole-Brain Instruction (Walker, 1988). All these approaches to learning were considered during the process of defining the six components which served as a working definition for Accelerated Learning throughout the study. While each component was derived from fundamental Suggestopedic principles, recognition was also given to many philosophical/psychological concepts and methodological contributions from researchers and educational professional. Each component is considered by Lozanov (1978) to be a major way or means to put principles into practice.

Background

The literature on implementing Accelerated Learning components in school environments was reviewed. Of the studies found, most published research had been conducted at the secondary or post-secondary level and very few presented data gathered on students in grades 1-5.

Of the studies conducted in elementary schools, few involved large sample sizes, employed specially trained teachers or used curriculum other than foreign language. Two studies were found in the literature which reported quantitative data involving elementary students and were conducted over a two-year period. The first was conducted by Schuster and Prichard (1978). This two-year study compared students with teachers trained with Accelerated Learning techniques to students with teachers who used traditional instruction. Students with Accelerated Learning teachers scored higher on spelling, science and math tests. The second two-year research project (Applegate, 1983) indicted higher scores in reading and math on the California Achievement Test from the group of school children (grades two to six) using Accelerated Learning methods. Of specific interest were two researchers (Prichard & Taylor, 1976, 1987) who adapted Lozanov's method to fit an elementary school setting/curriculum. Results from their data showed students' learning rate doubled and sometimes quadrupled its normal rate when instruction included Accelerated

Learning techniques. Other short-term studies revealed increases in recall of individual words, spelling and self-concept due to instruction which incorporated Accelerated Learning procedures (Balevski & Ganovski, 1975; Boyle & Render, 1982; Held, 1976; Johnson, 1982; Lozanov & Balevski, 1975; Portes & Foster, 1986).

The purpose of this study was to understand which of the six Accelerated Learning components teachers implemented, the rationale behind their decision to employ the component(s) and whether or not the component was effective considering the students' age level. Of particular interest was the question of whether Accelerated Learning components could be incorporated into the elementary school setting. This question is of relevance since there is little evidence in the literature to support Accelerated Learning components usage with primary children. Finding in this area can benefit classroom teachers as they consider the Accelerated Learning components as an effective alternative to traditional instruction.

Method

Erickson (1986) calls for fieldwork which demands observations in the field setting, interviewing, notes/recordings of events in the field, reflective analysis and descriptive reporting. Observations were made to gain an understanding of what teachers were doing and reasons for their actions in relationship to Accelerated Learning.

Twenty teachers were screened to determine their eligibility for the study. Six elementary public school teachers , employed by the same administrative system in Louisville, KY, were selected. Four teachers worked at the same school (first grade, second grade, remedial reading third grade and a split fourth/fifth grade). Two teachers taught at other locations (fourth grade and fifth grade). Each class contained the same number of students, and all classes were heterogeneously grouped.

Criteria for teacher selection were threefold. First, participants had had 45 hours of training in Accelerated Learning procedures with a professional trainer. Second, all subjects agreed to continue on-site training for about two years by attending periodic in-services and monthly meetings associated with the new methodology. Third, every participant verified that Accelerated Learning components were being practiced in their respective classrooms.

Teachers were observed and interviewed in their classrooms during the 1986-1987 school year. The researcher used the non-participant observational approach (Spradley, 1980) during all observations. In this type of inquiry, the researcher plays only one role -- that of observer. Detailed field notes were taken during these sessions that averaged one hour each. During visits, the researcher recorded the following information:

1. Classroom dialogue between teacher and students.

2. The overall organization of the classroom.

3. Teacher/student interaction.

4. Accelerated Learning component(s) being practiced.

5. How often component(s) was/were used.

Every observation was followed by an in-depth interview. Structured interviews (Gordon, 1975) were performed which gave the inquirer freedom to define specific problems and/or questions. Participants were asked about their perception of the observation as they answered the following questions:

1. What Accelerated Learning component(s) were you using?
2. How often do you use the component(s)?
3. What is you reason for using the Accelerated Learning component(s)?
4. How relevant is each component for elementary age students?

All taped interviews and field notes were materials from which data had to be constructed through some formal means of analysis. The process for converting documentary resources into data began by transcribing interviews and observations onto data analysis "protocols" as recommended by Lofland (1984). After multiple readings of the entire set of protocols, they were coded and cross-referenced for analysis. Charts were created to record the findings from a systematic search of the data. Evidence confirming and disconfirming four assumptions was noted.

1. The teacher could articulate which component(s) he/she employed and how often it was used.
2. The Teacher could state reasons for embodying the component(s) into his/her classroom.
3. The teacher could verify the component(s) was appropriate for the age level they taught.

4. The component(s) was used by the teacher as documented through the researcher's observations.

As the questions became directed more toward clarification than toward new knowledge, case studies of all teachers were prepared. In the case studies, each of the six Accelerated Learning components was presented with the above mentioned assumptions explaining the findings. The six components were found to be very much interrelated. Often, knowledge about one component pertained to another.

Results

The data collected from six case studies were analyzed and the findings were summarized. Summaries of the teachers' responses to the four questions asked by the researcher are reported in the following section.

Question 1: What Accelerated Learning component(s) were you using?

Findings indicate that one of the six subjects applied all the components in the classroom. Each subject reported making use of authority and double planeness. Intonation and rhythm were not exercised by two instructors due to their personal indifferences to the components. The state of pseudopassiveness was practiced by three teachers while only one used concert presentations.

It is interesting to note that the majority of the subjects changed or modified many component definitions. According to the teacher, altering the definition made the component adaptable for classroom use. Authority was defined as qualities teachers must transmit to students so that learning will be positive, joyful and rewarding. Infantilization became known as a vehicle for providing a playful atmosphere. Double planeness took on the new meaning of creating a learning environment conductive to learning. Intonation was not defined clearly by most teachers. Rhythm was usually seen through the use of music in the classroom. The state of pseudopassiveness encompassed the use of relaxation techniques and guided visualization.

Question 2: How often do you use the component(s)?

Each teacher reported the frequency of component usage fluctuated to fit the needs of their students, the elementary curriculum, and/or time schedules. Components were integrated across the curriculum, with exceptions made by two individuals. Authority, double planeness and intonation were employed daily. Rhythm was used daily by two teachers and strictly for writing instruction by other subjects. Concert presentations were used twice weekly while the state of pseudopassiveness was applied three times per week.

Question 3: What is your reason for using the Accelerated Learning component(s)?

The six teachers in this study gave similar answers for the reasons they used the components. Each subject implemented authority as a means of setting a positive tone in the learning environment. Double planeness allowed learning to occur through multi-modalities. Intonation assisted with encoding and helped reduce stress. Rhythm was also credited for creating a soothing classroom climate. Concert presentations were used to present difficult academic material in an interesting, appealing manner. The state of pseudopassiveness was utilized to ease anxiety toward content and testing.

Question 4: How relevant is each component for elementary age students?

Authority and double planeness were the only components reported by all subjects to be relevant for the age of the student being instructed. Subjects that taught grades one and three found intonation to be effective in their classrooms. Every teacher reported rhythm to be appropriate for their age group. Concert presentations were found to be more appropriate for grades 3, 4, and 5. The primary teachers felt this component was not developmentally geared for young children. The state of pseudopassiveness was deemed relevant for school children by everyone, with the exception of one teacher.

Five out of six teachers in this study did not use all the components. Instead, teachers incorporated components that blended with pre-established teaching strategies and methods. Some components were not found to be as appropriate for elementary students as others. Teachers applied the components which best fit their teaching style, the age of their class and the grade-level curriculum.

Summary

The aim of this research was to investigate the implementation of six Accelerated Learning components: authority, infantilization, double planeness, intonation, rhythm, and concert pseudopassiveness, in elementary public school classrooms. The study utilized a qualitative design and concluded with five recommendations for future research. These recommendations apply to researchers, educators, administrators, school boards and communities at large.

1. There is a need for a follow-up replication of this study to verify the components' usage, implementation and appropriateness for elementary age students. Teachers with a variety of Accelerated Learning training experiences from private as well as public schools would provide comparative data on component implementation and training methods.

2. More qualitative research needs to be undertaken in elementary schools throughout the country where Accelerated Learning components are employed. Such research would enable one to generalize results around the effects demographics and other school systems would have on implementation.

3. Separate research studies should be conducted at the middle and high school levels. Results from such designs would reveal which components would be appropriate at each level. The data could then be compared with the results from this study and offer teacher insights toward component adaptability with various age groups.

4. As noted in the results, most teachers had not adopted all the components of Accelerated Learning. An implication for future research then, is that researchers using quantitative measures of student achievement should first determine the extent to which the major components of Accelerated Learning are being used in each teacher's classroom.

5. Longer training sessions must be instituted prior to application of Accelerated Learning components. All subjects in this study believed their week of training was excellent, yet they wanted more. School systems must take on this responsibility in terms of providing funds and adequate training time.

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*** *** ***

Dieser Artikel berichtet die Ergebnisse der Studie, durchgefuehrt um die Benuetzung von Bestandteilen des beschleunigten Lernens in die allgemeinen Grundstueflichen Verlegungen zu bewerten. Besondere Richtung war auf sechs Lehren der allgemeinen schuelern, und ihre Durchfuehrung von sech Bestandteile des beschleunigten Lernens: Autoritaet, Infantilizierung, Betonung, Doppelflachheit, Rhythmus, und vereinigte Pseudopassivmus. Qualitative Forschungtsmethoden wurden benuetzt. Die Studie wurde geleitet von einer Hauptfrage: Was erlebt der Leher, als er/sie durchfuehrt die Bestandteile in der Klassenzimmer? Daten wurden gesammelt durch die Benuetzung von den Feldstudiertechniken von Besprechungen und Beobachtung. Die Folgen der Daten wurden berichte in Fall-Analysen jedes Lehers, und analysierten durch vier Annahme: (1) Der Bestandteil wurde benetzt beim Lehrer und beobachten beim Forscher; (2) Der Lehrer konnte die Bestimmung des Bestandteils aussagen und sein Benuetzthaeufigkeit erklaeren; (3) Der Bestandteil war angebracht fuer die Alterstufe in jener Klassenzimmer; und (4) Der Leher konnte Grunden geben fuer die Einbringung des Besandteils in seinem/ihrem Programm.

Analyse der Daten fuehrt an einigen Herbeifuehrungen, die wichtigste von denen war, dass jeder Leher die Bestandteile die am besten angemessen waren mit seinem/ihrem persoenlichen und doch berufsmaessigen Stil der Lehrung eingebracht und modifiziert hatte. Vorschlaege fuer zukuenftige Forschung wurden auch gegeben.

Este artículo presenta los resultados de un estudio llevado a cabo para evaluar el uso de componentes de Aprendizaje Acelerado en escuelas primarias públicas. El enfoque se puso en seis maestros de escuela pública y su uso de seis

componentes de Aprendizaje Acelerado: Autoridad, Infantilización , Doble Planos, Entonación, Ritmo y Pseudopasivismo en concierto. Se usaron métodos qualitativos de investigación. El estudio fue guiado por una pregunta central: ¿Que es lo que el maestro experiencia mientras implementa los componentes en la clase? Datos se obtuvieron usando los métodos de entrevista y observación. Los resultados del estudio se presentaron en estudio de casos de cada maestro y se analizaron a través de cuatro premisas: 1) el componente fue usado por el maestro y fue observado por el investigador; 2) el maestro podía articular la definición del componente y indicar la frecuencia de su uso; 3) el componente era apropriado para la edad de los alumnos el la clase; y 4) el maestro podía dar razones para implementar el componente en su programa. Análisis de los datos resultó en algunas conclusiones, la más importante del las cuales fue que cada maestro había incorporado y hecho modificaciones a los componentes que correspondían a su estilo personal y profesional de enseñanza. Se ofrecen sugerencias para investigación futura.

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Ball-Stick-Bird: Teaching with the Story Engram

Renee Fuller

Abstract. For almost two decades, the Ball-Stick-Bird reading system, an innovative approach to learning, has produced results which have raised profound questions about the nature of intelligence and IQ. What follows is a description of the system, a summary of the findings, and finally an attempt to understand the implications of these surprising findings within a neurological-behavioral-evolutionary framework. This new theory of cognitive organization, the story-as-the-engram theory, offers (1) an explanation for our species' sudden and meteoric intellectual development, and (2) the possibilities for even greater achievement.

* * * * * * * * *

The Ball-Stick-Bird reading system derives its name from the way it highlights alphabet configurations. The student is shown how all the letters of the alphabet can be built with three basic forms: a circle, a line and an angle. These three shapes, which are playfully called a ball, a stick and a bird, are so basic to the human nervous system that a newborn recognizes them. Even an octopus can be trained to respond to them.

By building the letters with the three forms while giving their most usual sounds, four sense modalities are tapped instead of the usual two. Further, the three basic forms highlight those parts of a letter that differentiate it from other letters.

Story reading, however, does not wait for alphabet mastery. The strategy is to get to genuine reading as rapidly as possible. Beginning reading is taught with capitals which have the additional advantage of avoiding letter reversals since in B-S-B letter building, the big stick is always first (to the left). Also letters are known by their most usual sound, rather than by their alphabet names, again reducing the initial memory load.

Already with the presentation of the second letter word building begins. With the presentation of the fourth letter the first science fiction story starts. To achieve such rapid immersion into story reading, the order of alphabet presentation is altered. The simplest and high frequency letters are presented first. Letters that make the same sound appear contiguously, while those with a similar look or sound are presented far apart to avoid interference.

Modified phonics are used which do not require fine sound discriminations. Since in English the correspondence between between letter and sound tends to be sloppy, the inaccuracies of a student's speech are harnessed to the advantage of the reading process. Approximate soundings come surprisingly easily. But Ball-Stick-Bird takes the process a step further by teaching "code approximation". The student is told that he is a detective, and that the letters are the clues that indicate what the word might be. But like all clues, they have to make sense in the context of the story. Because with code approximation reading is dependent on comprehension, word calling is all but impossible.

To help reading comprehension, developmental linguistics is utilized for the beginning stories which are built primarily with nouns and verbs; gradually adjectives and adverbs are introduced. Only in later books are the more difficult parts of speech (the articles, connectives, and prepositions) used.

Story comprehension is further enhanced and facilitated in the beginning books by the layout. Each idea unit, comprising mainly of a noun and its action verb, has its own line. These idea units, representing sub-stories, are used to construct the bigger story, line by line. In this way the layout highlights story building, producing a graphic image of how ideas are put together, how a paragraph is developed. Comprehension can now become not only the purpose of reading, but via developmental linguistics, layout in idea units, and code approximation, is used to help the student learn to read (Fuller, 1974, 1975, 1977).

The reading system, which had been intended for older non-readers with normal or superior IQ, was successful far beyond this group. Normal four-year-olds became advanced readers with astonishing ease, and there was not a single case of dyslexia (Fuller, 1987). The severely retarded did as well. In a detailed study, a group of 26 institutionalized retardates with IQ's as low as 28, who had previously been exposed to extensive educational intervention, and in spite of this had not mastered most of the alphabet, easily learned to read; 24 of them with comprehension (Fuller, 1974, 1977). Adult illiterates became proficient readers in weeks instead of years.(Fuller, 1988). Non-English speakers, the ESL group, found the books an open sesame into English.

But much more than reading had been learned. There were profound cognitive changes which had little relation to IQ or to mental age (Fuller, 1988; Fuller, Shuman, Schmell, Lutkus & Noyes, 1975). Unexpected as these results with the very young and the severely retarded were, even more unexpected was that they had been achieved with a technology requiring extensive intellectual feedback and contextual understandings. The use of code approximation, developmental linguistics, and layout in idea units, demand a knowledge of language that the very young, the severely retarded, the ESL group, are presumed to lack.

What had the reading system tapped that was not being measured by the IQ or language tests? What aspect of neural organization, of cognition, had been reached by the teaching system? In spite of the extensive and detailed testing and background data we had, it took my years to unravel this mystery (Fuller, 1979, 1982, 1985). What follows describes this unraveling process and some of its implications.

The Discovery of the Memory Engram With Which We Think

For the past 50 years psychology has been looking for the basic unit of memory called the engram. This search for the fundamental unit of how we think and remember had always struck me as a quest for a mythical construct which had little likelihood of becoming a reality. The history of psychology is replete with mythical constructs that after a generation of popularity peacefully disappear. It was difficult to imagine a neurological/behavioral unit like the engram that would explain how we see ourselves and our world. Much as I admired the work of Karl Lashley (1963), his inability to find the engram after years of research seemed to prove the point: the engram is a mythical construct that would, before long, quietly glide into oblivion. Which is why when we stumbled on what now looks very much like the engram, I didn't recognize what we had found.

There is safety in the old paradigm

Even after we had presented our results at an American Psychological Association symposium devoted solely to Ball-Stick-Bird, what now seems obvious was not apparent. In detail we described what had happened to our severely retarded subjects; the effects on vocabulary, passage reading and understanding, on word list reading, on following written directions. But the why question, why our low IQ subjects had been able to learn to read advanced material with comprehension, and write such sophisticated letters and even stories - that question was not really answered. My partial explanation was superficial and therefore safely correct. To wit, apparently some abstract cognitive operations are simpler for the human brain than the memorization of bits of unstructured material. Further, these bits of information are similar to the items sampled by IQ tests; which would explain why the success of our population was not correlated with their IQ scores. The question of what exactly in cognitive/neurological organization the Ball-Stick-Bird system had tapped remained unanswered.

Our audience repeatedly suggested the motivational aspect as the answer. Perhaps because the stories and the drawings were so entertaining...and yet, how could that explain success so far down the IQ scale? Gauging from the letters and notes our students had written to me, the author of the books they enjoyed, motivation was an important factor; but did the system tap into some specific aspect of cognitive organization?

The paradigm begins to shift

The first realization of some specific aspect being involved came with Ned who had been giving us puzzling results. He had learned the alphabet and word building quite rapidly. But then, more than a year later he still could not combine the words into sentences. All the other students, except one, had been reading sentences long before they had mastered all the alphabet.

Joyce, one of our "reading" psychologists pointed out that "Ned's got survival reading -- that's something. It's more than ten years of schooling did for him."

I had to agree. But why, when we had succeeded in teaching advanced reading to IQ's in the 30's were we failing with someone who had an IQ in the 60's? It wasn't logical. Although there was Gordy, the other exception who had not mastered the reading of sentences even though he too had no trouble learning the alphabet and word building when taught with the reduced memory-load techniques of B-S-B. Did Ned and Gordy have a common denominator?

It's an old adage in science that sometimes our failures tell us more than our successes. Would the understanding of Ned and Gordy's failure explain why the others, not only learned to read advanced material with comprehension, but why they turned into thinking human beings. At this stage, however, I understood neither the reason for our failures nor the reason for our successes.

The initial search for the common denominator between Ned and Gordy produced nothing. Both had come from destitute families with a history of trouble with the law. But that was true of most of our students. Both Ned and Gordy had set fire to their schools. That too was not unusual. Since we had chosen subjects who despite years of the best remedial schooling of every type had not mastered even the alphabet, our students represented the failures among the failures at the institution for the retarded. With their extensive neurological and sociological damage they were the dregs of society, physically, emotionally and socially. However, in spite of so much of nature and nurture being against them, we had succeeded in teaching them advanced reading, and to our amazement had seen them turn into responsive human beings. But not Ned and Gordy. Why?

Perhaps their IQ tests would show something. But even the most careful scrutiny of all the subtests showed nothing unusual. We tried to make the lessons more exciting by actually reading some of the stories to Ned, hoping that in this way he would get the point of reading, that he would begin to follow the story. He didn't.

I watched the teaching through the one-way mirror, trying to determine what was wrong. However, all I saw was Judy, one of our psychologists, doing an exciting teaching job. What was it that I wasn't seeing? Finally, taking the course of last resort, I broke into the teaching session. Judy obviously agreed with my decision, for on opening the door her

"It's about time" greeted me.

But my teaching was just as frustrating as hers had been. However, with Ned in front of me I did see one thing that had not been evident through the one-way mirror. Ned was trying so hard to learn, his body tense with effort. But something seemed to be interfering. Despite his efforts to concentrate, he just couldn't do it. Impulsively I reached across the table and put my hand over his.

And then I felt it!

Ned was losing the muscle tone of his hands several times a minute in synchronization with his loss of concentration. How could I have missed something so obvious? Yet it had not been apparent through the one-way mirror. Ned was having petit-mal seizures several times a minute. Repetitive electrical discharges of this type are strangely disruptive phenomena.

The next day's examination of Gordy revealed the same kind of petit-mal seizures - fast repetitive electrical discharges which, gauging from the loss of muscle tone and loss of concentration, probably were accompanied by loss of consciousness. Most important, these discharges, occurring several times a minute, meant that memory traces for anything more than isolated facts, were not being established. Hence Ned and Gordy could learn some of the segmental bits of information that appear on IQ tests, but they had trouble with coherent wholes.

Realizing what was wrong, it was now so obvious how different the two were from the other students. Tony, one of our psychologists, who had followed both of them for several years described the characteristic difference. "Ned and Gordy don't gossip like the rest of the patients. They don't know the political intrigue of the hospital which the other patients find so entertaining. They don't even know the details of their own lives." Of course these defects had not shown up on the IQ tests.

As long as nothing more was required of Ned and Gordy than learning bits of information which had been simplified to the toddler level, they could succeed. This is what B-S-B does for alphabet recognition and word building. However, the story part of the teaching system, which was so important to the other students, was meaningless to them. And because they could not remember and therefore follow a story, Ned and Gordy could not use the contextual cues to help them learn.

The development of the new paradigm

By being unusual, by showing what someone whose brain is unable to follow a story can and cannot do, Ned and Gordy demonstrated how all-encompassing the effects of story comprehension are not only to learning, but also for human interaction. The other severely retarded students contrasted sharply in that despite their retardation they were story engrossed. They showed us that story comprehension is so fundamental and overrepresented in the human brain that even a severely damaged brain can almost always call on this capacity. Hal was our most extraordinary demonstration of this fact.

Diagnosed as having central cortical blindness which manifested itself in graphic aphasia, Hal was brought into our study to determine if the reduced memory-load techniques of B-S-B could overcome his defect. Also by that time we were curious whether the contextual cues from the stories could compensate for the reduced information input resulting from his graphic aphasia. Hal showed himself a total reverse of Ned and Gordy. He learned to read the stories in almost no time, expertly anticipating what would happen next. And yet even after he became a fluent reader there were occasions when he failed to recognize identical letters side by side as being the same.

For Hal, B-S-B's developmental linguistics, layout in idea units, and probably code approximation made a cognitive breakthrough possible. By using contextual cues he was able to compensate for what his brain could not see, for his graphic aphasia.

For Hal, as for most of us, the whole was more important in the learning process than the memorization of the parts. And the whole that B-S-B had used was the story. As it turned out, it was a crucial choice.

But what exactly is a story, and how does it come into being? When does story comprehension begin in development, and what is it composed of? How did evolution build the story capacity and the need for story telling that is so characteristic of our species? And what is the relation of story cohesion to thinking, and therefore consciousness?

It was the asking of these questions and my search for their answers that made me realize that B-S-B must have tapped something basic in human cognitive development. The stories and letters written by our beginning readers furnished the clue. Line by careful line, these written communications were built with idea units à la B-S-B. At first the idea units were composed of just a noun and its action verb. But even after becoming advanced readers, the letters and stories had traces of the original B-S-B idea-unit layout. And when our retarded students talked with us, they didn't use the haphazard techniques of the past. Instead they carefully put together what they had to say by first searching for the right noun, then the verb, gradually adding the adjectives and adverbs. They were putting together idea units which they used to build the bigger story. Sometimes our severely retarded students wrote out what they wanted to tell us. Again they mimicked the layout of the beginning books, and with idea units they constructed the bigger story line by line. One of our students with a Binet IQ in the 30's explained his reason for writing things out in this way with "It help you think".

Once I realized that the fundamental unit of cognitive organization that B-S-B had tapped was the idea unit, which is actually a miniature story, the next question was where on the evolutionary scale does the idea unit or miniature story begin? At what stage does it appear in child development?

The evolution of the idea unit is a fascinating story of its own. Some of the higher mammals, as experiments with seals, dolphins, monkeys, chimpanzees, and gorillas have shown, can recognize and sometimes even express nouns and action verbs. Seyfarth's (1980) vervet monkeys had a different series of sounds for panther, snake or eagle; and each of these nouns produced a different response - or action verb. Here we see the beginning of the idea unit, which is also the beginning of the miniature story. On a personal level, many of us have known dogs that recognize the names (nouns) of certain objects like ball, stick, slipper; and verbs like sit, fetch and bark. An occasional dog - I had one - responds to selected nouns and verbs, differentiating the idea units quite skillfully. Roger Fouts (personal communication) restrained one eager chimpanzee from going into the next room by signing to her that there was a dangerous monster on the other side of the door. The chimpanzee's reaction was reminiscent of that of our own children: she requested that he sign "the story" again and again, shrieking with delight at every repetition.

As for our human children, already by the time he/she can express two words (at about one year of age) there is an implicit understanding of some of the idea units that appear in the beginning B-S-B books. A two to three-year old uses "telegraphic" speech which is composed mainly of a noun and its action verb (an idea unit) to tell his miniature stories. He/she also demonstrates an understanding of how idea units are used to build bigger stories when requesting "read me story". B-S-B mimics this developmental process, and by presenting in graphic form what the human mind does naturally, the teaching system not only facilitated the learning of reading, but actually taught (albeit unintentionally) how language and therefore thinking are put together.

The idea unit, or miniature story, as a unit of information processing is not the only way that information storage and processing could or has evolved. An example of an alternative way is that of the bees. Theirs is a highly efficient form requiring the investment of only a tiny nervous system. In contrast, the mammalian brain is an expensive energy investment. However, it has a building block that has evolved to allow for the organization and storage of an astonishing volume of information which can be recombined in numerous different ways. It also led to the uniquely human way of structuring reality which, as the B-S-B results have shown, can be developed beyond our wildest hopes.

Describing the idea unit and its implications for human learning, retention, thinking and awareness, it gradually dawned on me that I was describing that mythical construct, the engram. Except that it wasn't mythical, but something astonishingly concrete whose development could be traced through the evolution of the higher mammals; a development that is recapitulated in the ontogeny of every child. This idea unit, this engram, functions as our cognitive organizer and therefore structures our conscious reality. As our memory engram, and because of its nature, it involves the whole brain (including our emotional limbic system), which explains why it was present in almost all of our severely retarded (damaged) subjects (Fuller, 1982).

The story engram has given us a powerful cognitive tool. With it we can organize, summarize, and reintegrate an enormous amount of information. But the story engram does more than help us remember facts, happenings and bits of knowledge. By imposing a structure on reality it determines how we humans perceive our world. The causal relationship, the either/or phenomena, the dichotomies, are imposed by an engram that derives its structure from a noun-action-verb ontogeny. It therefore determines and defines what is human logic. Here is the "neural interpreter" that Gazzaniga (1988) describes in his split-brain experiments, and the evolutionary "tricks to enlarge memory and speed computation" (p. 60) of Edward O. Wilson (1984). All the sophistication of artificial intelligence (AI) has not been able to simulate the power of our cognitive organizer, the story engram, in navigating the real world. But then, according to Feigenbaum (1983) "getting around in the real world is not a highly structured task...." (p. 57).

As the cognitive building block, the story engram is so fundamental to our thinking process that it is difficult for us to imagine an alternative way of perceiving our world. So completely do we take this way of structuring reality for granted, that that even the aliens of our science fiction invariably communicate in story form. This despite the fact that numerous life forms on our own planet have evolved alternative ways of communicating and information processing. My own slowness in recognizing what aspect of cognitive organization B-S-B had tapped is an example of both, how much we take the story engram for granted, and how little we are cognizant of its existence. Yet this lack of awareness goes hand in hand with a deep emotional attachment to our cognitive organizer to whose manifestations and elaborations we devote much of our waking life.

There are several reasons for this attachment. As we saw with our B-S-B students, the story engram, by functioning as our cognitive organizer, has made us a story-telling-thinking species. And because the engram has a feedback loop into the limbic system, our stories can make us cry, or laugh, or produce any other emotion that belongs to us. Rico (1983), using her clustering technique which elicits the story engram, has demonstrated the clinical and cognitive power of this feedback loop.

But there is another very important aspect of the story engram that we saw in our students. After they had learned to use the story engram to build the bigger stories with which they described themselves and their world, they matured far beyond IQ expectations (Fuller et al., 1975). Having learned to impose a structure on the world around them, they saw themselves as having acquired a structure, an identity. What had once been suffering, voiceless masses of protoplasm, now became thinking humans beings. Descriptive of this is the moving account by Linda MacRae Campbell (1988, 1986) of the metamorphosis of her institutionalized retarded student into a would-be autobiographer. He succeeded in his dream, and in his heartfelt thank you letter to B-S-B. Bill Knacke's *Inside World* (1988)* is a vibrant demonstration that for us humans the telling of the human story creates awareness or consciousness. Descartes should have proclaimed fabulor ergo sum, instead of cogito ergo sum; because with story creation we define our very being. Story organization allows us to look at ourselves, talk and think about ourselves, and maybe someday know ourselves.

The intellectual history of mankind, a meager six thousand or so years old, is deeply entwined with the development of the story engram as our cognitive organizer. With it we transmitted from generation to generation the successes and failures of the past as well as the explanations and hopes for the future. The advent of literacy formalized this transmission. But something more happened.

The linkage between literacy and the intellectual explosion of the last six thousand years is no accident. For literacy facilitated the isolation of the engram, allowing the writer to headline or highlight an idea unit as a concept or construct. As with our B-S-B students, this helped highly educated people to think. These literate intellectuals had learned (albeit implicitly) how to isolate engrams and determine how well they imposed a structure on the chaos of life. In this way they also found out that engrams which cannot be validated may give the wrong structure with which to think, and that accurate engrams can be tools for further understandings. It is the validation of engrams that brought about our age of science - an age which is just a few hundred years old. In these last few hundred years we have learned that accurate engrams can indeed be used as scaffoldings for marvelous edifices of the human mind. How very ironic that it was severely retarded students, not an intellectual elite, who recapitulated this historical process and showed that knowing how to build engrams, and using them for further building of stories and ideas, brings with it an emotional and intellectual metamorphosis.

But in addition, the B-S-B results established something quite unexpected. They demonstrated that engram building can be taught, with astonishing results for even the least endowed. Results with normal four-year-olds have been just as spectacular, creating demands for further research. The findings to date give us a glimpse of the potential achievements that could be within the reach of the human species as we seek metacognitive understandings with our neurological - behavioral building block, the story engram.

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Fuer fast zwei Jahrzehnten, das "Ball-Stift-Vogel" Lesen System, ein erneuerungender einfuehrender Zugang an Lernen, hat Resultaten gegeben, die tiefgruendige Fragen ueber die Art der Intelligenz und des IQs aufgehoben haben. Folgend ist eine Beschreibung des Systems, eine kurze Angabe der Resultaten, und zum letzen ein Veresuch nach Verstandung der Einbeziehung dieser ueberraschenden Ergebnissen drinnen des neurologischen-Benehmungs-Evolutions-Gefueges. Diese neue Theorie Erkennungs-organiations, die "Geschichte-als-das-Engram" Theorie bietet (1) eine Erklaerung fuer die ploetzliche und meterorische intellektuelle Entwicklung unserer Gattung, und (2) die Moeglichkeiten fuer noch hoehere Errichung.

Durante casi dos décados, el sistema de leer "Ball-Stick-Bird", un sistema innovativo de aprender, ha producido resultados que han provocado importantes preguntas sobre la naturaleza de la inteligencia. Lo que sigue es una descripción del sistema, un resumen de los resultados, y por fin un intento de entender las implicaciones de estos resultados sorprendentes dentro de un sistema neurológico-behaviorista-evolucionario. Esta teoría nueva de organización cognoscitiva, la teoría "story-as-an-engram", ofrece (1) una explicación para el desarrollo intelectual abrupto y meteórico de nuestra especie y (2) las posibilidades de aún mayores logros.

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A SALT Pilot Study in College Developmental Mathematics

by

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Abstract. A SALT developmental mathematics pilot study was conducted during Winter quarter, 1986 at Kennesaw College (Cobb County, GA). The experimental (SALT) class significantly outscored the controls on the departmental final exam. Retention and per cent passing data also favored the SALT class.

INTRODUCTION

Mathematics 098 is the first of two sequential developmental mathematics courses offered at Kennesaw College. Together with its successor, Math 099, it is designed to prepare students whose math skills are rusty (adults returning to college in mid-life) or undeveloped (recent high school graduates who did not pursue a college-prep curriculum) for the regular, entry-level freshman math courses.

Students with low SAT math scores combined with low scorers on a locally developed placement test are enrolled in Math 098 or Math 099 according to the amount of remediation deemed necessary. Thus Math 098 constitutes the lowest level of training in mathematics at Kennesaw: it includes operations involving fractions, operations with signed numbers, the laws of exponents, operations on polynomials, factoring, radicals, solving first degree equations, and applications. This material is roughly equivalent to high school Algebra I.

Math 098 students may be characterized as possessing at least one of the characteristics that typically correlate with low scores on the SAT-math subtest. Low aptitude, inadequate training, poor time management and study skills, below average motivation, and math-phobia have all affected this student population to some degree.

METHOD

An acceptable definition of a SALT teacher is as follows: one who orchestrates all aspects of the classroom atmosphere in order to create maximum suggestive impact for the purpose of freeing the mind's learning reserves. There are seven sources of suggestion available for the teacher to use to that end: teacher verbals, teacher nonverbals, classroom decor, nature and sequencing of activities, nature and sequencing of materials, among-pupil suggestion and pupil auto-suggestion. This pilot study did not attempt to include all of the available sources of suggestion; indeed, it should be considered a dry run for the instructor (the author) who had never before attempted to teach Algebra with SALT-type methodology under controlled experimental conditions.

The experimental variables selected for manipulation in this study were: a pre-instructional guided imagery activity (mind calming) carried out without music, a two-part relaxation review covering major lesson topics, a strong positive-suggestive atmosphere characterized by teacher verbal assurances that not only did the class have the ability to excell but was actually doing so, and special extra-credit assignments (challenge problems called brain teasers) described as being appropriate only for classes with special potential in mathematics.

The sequence of activities in a typical experimental (SALT) class (meeting for three 85 minute sessions per week) was as follows:

ACTIVITY	MINUTES
1. Class business (roll call, announcements, etc.)	5
2. Mind calming	5
3. Review of previous lesson, including teacher demonstration of difficult problems	15-20
4. Presentation of new material	25-30
5. Small group work	20
6. Relaxation review	10

The control group also met on a M/W/F 85-minute period schedule. The activities carried on there were similar to those listed above, except #2 and #6 were eliminated, no special suggestion were given concerning the abilities of the class, and no extra "brain teaser assignments" were given.

Mind Calming

This activity is an integral part of SALT. Students closed their eyes, focused their attention on their breathing, and relaxed as they listened to the instructor read from one of seven specially prepared scripts, each designed to both promote relaxation and evoke mental imagery. The seven scripts were alternated in order to avoid boredom. Six of the scripts described fantasy trips to familiar places, including a waterfall, a springtime trip through a field of flowers, and a bird's eye view of an ocean beach, complete with suggestions related to the sounds (seagulls and surf), sights, and smells (fresh air, salty water) of the seashore. The remaining mind calming script consisted only of relaxation suggestions. It encouraged each student to create his own favorite relaxing place where he could enjoy whatever spontaneous imagery arose without hearing a voice guiding that flow. As the quarter progressed, this proved to be the most popular mind calming exercise. Once students began to realize the benefits of relaxation/visualization, they became eager to take control of the activity in order to make best use of their personal relaxing time.

Relaxation Review

This activity was also carried out only in the SALT class: a two part review of the material presented that day, the first part without music, the second with a classical music background. In part 1, students closed their eyes and relaxed for 1-2 minutes (many of them indicated that they traveled to their favorite relaxing place). Then they opened their eyes and listened to the instructor while they read along with him in their notes as he summarized the day's lesson. Care was taken to review definitions, theorems, and major points which had ben written on the board and thus were to have been copied in class notes. In part two of the review, students closed their eyes and relaxed again while the instructor reviewed the same material. The same definitions, theorems, and major points were repeated; care was taken to pause between each to allow for the formation of appropriate images in students' minds.

Part two of the review was conducted over a taped music background featuring the Baroque works of composers such as Corelli, Bach, Vivaldi, and Telemann. Students were instructed not to try to remember. Instead they were simply to let go, immersing themselves in the music as if they were at a concert, allowing the music to carry the information borne by the instructor's voice into their memory with no special effort on their part. Any accompanying visual images related to the math lesson were to be experienced, then allowed to fade away into their unconscious minds as the instructor moved on to the next item in the review. The review ended with a half minute of "just music" and with silence: time for students to return to their normal waking state (another thirty seconds or so).

RESULTS

The final examination for both experimental and control classes was a department-wide, locally developed, 50 item multiple choice test. Results were as follows.

	Experimental (SALT) Class	Control Class
Mean	39.68 (n=28)	34.38 (n=21)

A t-test of the significance of the difference (5.3 points) between the two means yielded a t value of 2.27, significant at the .05 level.

In addition to higher final exam scores, retention and per cent passing were higher in the SALT class. Twenty-eight of thirty students completed the SALT class; 23 of them (77%) passed. Only 21 of 30 control group students completed the course; 15 of them passed (50%).

DISCUSSION

The fact that the experimental (SALT) class significantly outscored the controls was a hoped-for outcome, though it was by no means considered inevitable. The reader may realize that suggestive tools such as intonation, role playing, and positive-suggestive classroom decor were not used at all, while use of other tools such as teacher nonverbals and metaphor was spontaneous and only occasional, rather than constituting a planned, integral part of the classroom routine.

It may be accurately said that the author chose to begin SALT applications in developmental mathematics at a manageable pace, choosing to carefully control use of some suggestive tools while hoping to move on to others in later classes.

The logical extension of SALT methodology for later Math 098 classes should include more extensive use of music: specifically during the introduction of new material, during group work, and during the first part of the relaxation review. Intonation and greater attention to teacher nonverbals are important areas for further work.

The author believes these data are supportive of results already obtained in the general lines of inquiry SALT researchers have pursued over the years and that further investigation of the variables involved in the suggestion/de-suggestion process will yield valuable insight into methods necessary for the activation of the mind's reserves.

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Eine SALT entwicklungsversuchstudie der Mathematik wurde durchgefuehrt waehrend des Winterquartals, in 1986, bei der Kennesaw Hochschule (Cobb County, GA). Die (SALT) Versuchsklasse bemerkenswert uebererzielt die Kontrolklasse auf das Abteilungsschlussexamen, Daten ueber Behalten und Prozent schaffend auch die SALT Klasse bevorzugt.

Se acabó un estudio piloto de desarrollo matemático utilizando SALT durante el invierno de 1986 en Kennesaw College (Cobb County, Georgia). Los alumnos de la clase experimental (SALT) obtuvieron marcas significativamente más altas que los controles en el examen final del departamento. Datos de retención y por ciento aprobado también favorecían a la clase SALT.

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Education for Blacks in South Africa: Issues, Problems and Perspectives

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Abstract. In this article some of the issues which constitute major problems in the education of Black South Africans are sketched. In the first place the discontinuity between the pupils' traditional home background and a Westernized system of education creates severe obstacles. They are aggravated by the fact that Black culture is itself in transition, by the contempt with which Black culture was regarded by the colonialists and by the discriminatory political practices which denied Black education adequate provision. Other issues that further complicate education for Blacks are discussed. To remedy such a situation, intervention of an exceptional nature is needed. The UPTTRAIL project promises to provide such intervention.

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Introduction

In this article I am going to discuss some issues which constitute major problems in the education of Black South Africans. In order to fit these issues into their context, it will be necessary to start with a brief historical sketch and also to mention some socio-political issues. It is in this context that particular issues relating to education can be properly understood and appreciated. My thesis in this article is that the problems in the education for Black South Africans emanate from a complex set of influences and anyone who desires to contribute something towards the amelioration or elimination of these problems must enter the arena at certain strategic points.

Brief Historical Background

School education for Black South Africans was grafted on the social and cultural life of the various tribal societies by the missionaries towards the end of the 18th century, but particularly in the middle of the 19th century. The intention in this discussion is not to sketch the history of the introduction of formal school education amongst the South African Blacks. The issue that is being highlighted here is that the introduction of school education divided Blacks not only into educated and non-educated classes, but also into christianised and non-christianised groups. When industrialisation and urbanisation later took place, both groups were affected, for these social processes set in motion a dynamic movement away from the stable norm of traditionalism to the highly unstable conditions of modernism.

Those groups or individuals who have been favoured by circumstances, and who have also possessed the ability to adapt quickly to new conditions, have moved faster through the process of social transformation. Those left behind at various stages of development have been resident mainly in the rural areas. This process has been complicated by the South African political system that has discriminated against Blacks in the matter of providing facilities.

It is necessary to understand that during the missionary era (up to 1953), Christian norms were clearly and deliberately persued. School education was mainly in aid of evangelising the Blacks. Schools in the mission stations drew pupils from families that accepted Christianity. When mass education was promoted for a quarter of a century during the Bantu Education era (1954-1979), pupils emerged from families which were at various stages of transition from traditionalism to modernism. The heterogeneous social background of the pupils made it difficult for teachers to uphold a consistent value system. The teachers themselves did not understand the educational implications of these social dynamics because of their own background and low qualifications. As a consequence, school education became concerned merely with the imparting of the bare facts of the subject matter, which were hardly related to the daily lives of the pupils.

This phenomenon of cultural discontinuity between the pupils' home background and school education has been found in many countries in Africa. Shehu (1984, p. 31) reports that the agents of colonialism, whether civil servants, members of the armed forces, missionaries, explorers or traders, ridiculed, criticised and often humiliated Africans regarding their cultural heritage. African religions were labeled primitive, works of art were described as crude or immoral, dances were seen as ritualistic and sensual. None of these age-old heritages was considered worthy of any respect or preservation. Western European standards were applied to Africa and pursued vigorously with the effect that the African increasingly admired Western culture. What we are saying here is that whereas school education was part of the culture of Europe, there was cultural discontinuity in Africa which created an obstacle to African advancement. African education must find a way of introducing modern technology quickly and effectively so that indigenous populations can assimilate this technology in such a way as to have full command of it.

Wider Issues

One issue that we need to highlight at a socio-political level is the one of social norms. School education usually promotes middle class norms. Pupils from the lower classes or disadvantaged groups have always found it difficult to compete with pupils who come from the middle class homes. In South Africa, Black people not only come from a culture in transition, but they are also at the bottom of the South African social structure which happens to be determined by race as well. Nevertheless, a sizable number have been able to surmount the social and cultural barriers and are able to compete favourably with the other race groups (but there are exceptions). The core of the problem is that there is a great majority of Black people who are, educationally, seriously handicapped and cannot get out of this dilemma. Something quite drastic must be done to address this problem.

This problem is complicated by the political issues which have created an environment of discrimination against Blacks and made it difficult for them to overcome their educational problems. If Blacks merely had to handle the problem of coping with a situation of adapting a foreign system of education to their social and cultural circumstances (without having to be bothered by the political struggle), they would have sufficient homework to do.

The discriminatory practices in the provision of education for Blacks have created a perception in them which has filtered down to to the pupils that they are being educated for slavery. Black students and pupils have been boycotting classes and even burning down their own schools. This may seem to be a futile, stupid and self-defeating exercise, but it is a rejection of a system that has lost its credibility.

This is the dilemma in which education for Blacks finds itself today. The Department of Education and Training (of the White government) has increased its budget dramatically since 1976 and much more improvement and many innovations have been effected, but perceptions of "education for slavery" still persist in some quarters. In this case the social arrangements in the country, born out of the prevailing political system, are a main cause of dissatisfaction and constitute an obstacle to educational advancement for Black South Africans.

These cultural and socio-political issues constitute the wider context within which the following specific issues can be viewed.

Specific Issues

The Language Issue

Several threads complicate this issue. Viewed from historical perspectives, there is first a colonial hangover and indoctrination that make some Black people believe that a really educated person is the one who speaks English very well. Then there is the apparent contradiction between the desire for the development of national and cultural pride on the one hand and the desire for westernisation on the other. This policy is manifested in the language policy of the schools. A very strong argument for the use of English as the medium of instruction in Black schools in South Africa is that English in an international language, a language of commerce and industry, of science and literature. On the other hand, it is argued that while the use of the African languages as media of instruction would be pedagogically sound, the use of these languages, it is asserted, would lock the Blacks into their small tribal cultural kraals from which they would not emerge. Black children, therefore, learn through their various mother tongues for the first four years and thereafter switch over to English as a medium of instruction. Black pupils, particularly from rural areas, seldom hear or use English outside the classroom. Obviously, the use of a foreign medium presents the child with the double problem of having to struggle with the language as well as with the concepts of a particular subject. It must also be pointed out that the subject matter is itself western-oriented, selected and ordered from Western culture. Black pupils learn more about the French and American revolutions, and very little about the African struggles for independence. Many Blacks learn about electricity when there is none in their environment.

The extent to which the use of a foreign language as medium of instruction affects the cognitive development of Black pupils has not been properly investigated. It seems that the great majority of pupils struggle along and give up sooner or later. This may be one reason amongst others for the great drop-out rate among Black pupils. Add to this difficult situation the fact that many Black teachers themselves have not properly mastered either the language of instruction or the concepts they themselves are transmitting.

The present norm for an acceptably qualified teacher in South Africa is Grade 12 (Standard 10) plus a three years' professional qualification. In 1983, only 23.1% of teachers in Black schools were properly qualified. In this regard, a Report of the Human Sciences Research Council (1981) said "Without a corps of well-trained and talented teachers, any endeavor aimed at a system of education by means of which the potential of the country's inhabitants is to be realised, economic growth promoted, the quality of life of the inhabitants improved and education of quality provided to everyone, cannot be successful."

Table 1. The pupil-teacher ratio for 1983 was as follows for the different racial groups:

Whites	Asians	Coloureds	Blacks
18.2:1	23.6:1	26.7:1	42.7:1

Source: Survey of Race Relations in South Africa 1983, Johannesburg, for 1984 p. 421.

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Financing of Education

Despite the fact that a considerable amount of money has been made available by the government for Black education since 1976, the gap that still exists between the amounts spent on the Black child and children of other race groups remains unacceptably wide as the following table indicates:

Table 2. Per Capita Expenditure on Education 1982/1983

	Including	Excluding
	Capital Expenditure	
White	R 1,385.00	R 1,211.00
Coloureds	871.87	711.16
Indian	591.37	497.59
Black	191.34	146.44

Source: Survey of Race Relations in South Africa, 1983, p. 420.

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The situation is changing now as the government begins to put more money into education for Blacks..

The consequences of the socio-political environment described above, the poor qualifications of teachers, inadequate financing and a low teacher-pupil ratio show themselves in the following symptoms:

Many Black children are leaving school without obtaining sustainable literacy. If this situation does not change, there will continue to be an increasing number of uneducated and undereducated people in South Africa.

There are indications of improvement in the pass rate since 1987.

Conclusion

The perspective I wish to emphasize is that since educational disability is usually found among socially and economically disadvantaged groups in all societies, we can conclude that there is a systematic relationship between social conditions and educational competence. The culturally deprived child may also be retarded in cognitive skills by the time he enters school. Many Black children come from squalid slums on the periphery of large cities, which, with their overcrowded apartments, offer a limited range of stimulation to a child. Little money is available for newspapers, books, magazines, and few Black communities or schools possess libraries. Any attempt to improve the quality and qualifications of teachers is frustrated by these many handicaps. The net effect is that

Table 3. Drop out rate

Standard or Grade	Original Enrollment	Still at School in 1975	
		Number	Percentage
2 (Gr. 4)	687,990	419,212	60.9
5 (Gr. 7)	624,942	221,019	35.4
8 (Gr. 10)	515,449	50,772	9.9
10 (Gr. 12)	443,030	9,009	2.0

Source: Energos, 1983, p. 56

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schools are not producing properly educated individuals who can hold their own anywhere in the world of science and art, religion, literature and religion, commerce and industry (in sufficient numbers). Instead, schools are providing a powder keg of resistance as more and more pupils perceive the conditions at school to be an inevitable consequence of the general socio-political situation.

Table 4. Failure Rate

Black Matriculants 1979-1983

Year	No. of Candidates	No. Passed	%	No. Obtaining Matric Exemption	%
1979	14,574	10,706	73.5	4,136	28.5
1980	29,973	15,935	53.2	4,714	15.7
1981	48,571	25,963	53.5	6,069	12.5
1982	60,108	30,541	50.8	6,336	10.5
1983	72,168	34,876	48.3	7,108	9.8

Source: Survey of Race Relations in South Africa, 1983, p. 439.

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In summary, in this paper I have tried to show that the historical development of school education for Blacks in South Africa created a situation of cultural and social conflict that made it difficult for education to proceed smoothly. The South African socio-political arrangements place Blacks at the bottom of the social structure, thus creating tremendous obstacles for Blacks and making it difficult for them to do well at school. The conditions which exist in Black schools make it difficult to attain effective transmission of knowledge, proper development of skills and the acquisition of understanding and insight by pupils. The absence of a supportive environment in homes and schools within which wholesome attitudes and appreciation may develop, and the absence of means and the lack of capacity by teachers to develop in their pupils qualities of creativity, reasoning powers, and originality, all add up to a situation posing serious obstacles to advancement in Black education. It has always been a source of amazement that many Blacks still achieve educational eminence in spite of these problems.

The purpose of this article was not to provide answers to the many problems that beset the education for Blacks in South Africa. This situation calls for wider and deeper attention to the transformation of South African society and at the same time special and deliberate attention to all those specific issues that constitute obstacles to the realisation of educational goals. It seems to me the development of language and thinking skills that the UPTTRAIL Trust tries to attend to goes to the heart of the matter in an attempt to solve the problem.

I have great pleasure in recommending the pilot project on the upgrading of language, thinking and teaching skills for your very careful consideration.

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In diesem Artikel, einige der Streitfragen die Hauptproblemen in die Erziehung der Schwartzen in Sued Afrika einrichten werden erlaeutert. Zuerst, die Unstetigkeit zwischen der traditionellen Heim-Umgebung der Schuelern und einem verwestlichenden Erziehungssystem verursacht strenge Hindernisse. Diese Hindernisse werden verschlimmert durch die Tatsache, dass die Kultur der Schwarzen selbst in einer Uebergangzeit ist, bei der Verachtung Ueberweisend an die Kultur der Schwartzen bei den Siedlern, und bei den unterschiedlichen politischen Gewoehnlichkeiten, die die Erziehung der Schwartzen genuegende Vorsorge verneint. Anderen Streitfragen, die Erziehung der Schwartzen weiter komplizieren, werden diskutiert. Um solche Lage zu heilen Dazwischentreten der ausserordentlichen Art wird gebraucht. Das UPTTRAIL Projekt verspricht solches Dazwischentreten zu beschaffen.

En este artículo se indican temas que representan grandes problemas en la educación de negros sudafricanos. En primer lugar, descontinuidad entre el ambiente tradicional casero de los alumnos y el sistema occidental de educación crea obstáculos serios. Estos se agravan por el hecho de que la misma cultura negra está en transición, por el desdén con que los colonialistas miraben a la cultura negra y por las prácticas políticas descriminatorias que negaban provisión adecuada para la enseñanza negra. Otros temas que complican la enseñanza negra se discuten. Para remediar tal situación se necesita una intervención de una naturaleza excepcional. El proyecto UPTTRAIL promete ofrecer tal intervención.

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Towards the Mountain: Characteristics and Implications of the South African UPTTRAIL Pilot Project

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Abstract. In this article van der Vyver in the first place states the goal of the UPTTRAIL pilot project, which is to prove conclusively that it can effectively address the needs outlined by Thembela in the previous article. In the second place he describes the endeavors that preceded and contributed to the inception of the pilot project and of the educational Trust which administers it, viz:

- the research into the language needs in education for Blacks, and
- the research for innovative approaches by means of which training and learning outcomes could be accelerated.

In the third place he describes the pilot project, in which a representative sample of KwaZulu teachers were taught English, teaching and thinking skills by means of SALT. The sample was further trained to teach their pupils English and thinking skills by means of the same method. The effects of the course are being monitored and evaluated scientifically by means of pre- and post-testing of experimental and school controls.

Several important guidelines are indicated, viz:

- collaboration with the community involved will be maintained at all times
- wider implementation of the programme will be striven for
- unleashing the human potential of not only all South Africans, but also of pupils outside the boundaries of the RSA will be the ultimate goal. The Project has already become an international endeavor.

In the second part of the article Capdevielle draws attention to the social, economic, and political implications of the pilot project.

It is maintained that true democracy, i.e. government by the people, does not exist as there is no "democratic man" i.e. one who not only desires democracy but has the capacity to live democratically. Throughout history the world has been governed by a few.

Capdevielle argues that throughout history only a few people have benefited from the growing corpus of scientific knowledge which permits the development of human intelligence and potential. Inequality of human beings was not determined genetically. They all have more or less the same potentiality, the same capacity to think. Every effort should thus be made to develop this potential. In a true democracy, knowledge should be democratized so that all can play a role in the determination of their destiny.

Finally, Capdevielle points out that the UPTTRAIL pilot project endeavors to place the benefits of knowledge in the hands of all people, to achieve total and responsible participation by all members of society, especially the Blacks, in the social, economic, and political life of South Africa.

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Introduction

The crying educational needs in Black schools in S. A., portrayed so vividly by Alex Thembela in the previous article, have given rise to numerous endeavors, all directed at improving the situation. Among others there are the Molteno Project the Anglo-Vaal Project in Natal and the Bophuthatswana Elementary Education Upgrading Project in Bophuthatswana (vide Odendaal, 1985). In spite of their commendable efforts and notable successes, much remains to be done in view of significant overall improvement in education for Blacks.

Attention is focused in this article on a new pilot project, which could contribute significantly towards possible solutions to the problems in education for Blacks, viz the UPTTRAIL pilot project.

What is the Purpose of the Pilot Project?

The immediate objective of the UPTTRAIL pilot project is to demonstrate convincingly that the quality of education for Blacks in particular can be improved significantly and learning outcomes can be accelerated. The Trust wants to achieve this by trying out a new and unique amalgam of enriched suggestopedic language teaching and methods to promote thinking skills in a pilot project. The separate components have been tested locally and abroad, and their successes have been documented in various publications and unpublished, but accessible, dissertations and reports, such as the work of Feuerstein (1979 and 1980), Schuster (1983), Edwards (1983), the Harvard report (1983), a study done by Gassner-Roberts and Brislan

(1984), Dhority (1984), Botha (1986), and Odendaal (1987). UPTTRAIL believes that an integrated package of these and other components will deliver even better results than the sum total of its parts. Once positive results of the pilot project are demonstrated to education departments, the private sector and institutions, locally and abroad, favorable decisions regarding the escalation and wider implementation of similar in-service programmes are expected.

The Needs

The needs the UPTTRAIL project wants to address have already been clearly and convincingly described by Alex Thembela in the previous article. Further information on the subject is contained in the article by van der Vyver, "SALT in South Africa: Needs and Parameters" in the SALT Journal, 10 (3). In summary it can be said that most of the Black primary and secondary school teachers, whose mother tongue is not English, are expected to teach pupils for whom English is also a foreign language, through the medium of English. Further, the present poor standard of English as a medium of instruction in education for Blacks is self-perpetuating; poor language skills in the primary school affect the quality of education in the high school which in turn impedes the quality of tertiary education. The primary school seems to be the logical point of entry into this vicious circle for any endeavor aimed at upgrading the skills of Black primary school teachers as well as those of teacher-trainees.

Background, History and the Creation of the UPTTRAIL Trust

An Interuniversity Committee for Language Teaching was formed in 1979 at the University of the North in

South Africa (one of the universities with predominantly Black students). Today it consists of representatives of the following universities: Bophuthatswana, Fort Hare, the North, Venda, Stellenbosch, Transkei and Zululand. The reader will notice that six out of the eight predominantly Black universities in South Africa are represented on this committee.

The Interuniversity Committee defined two priorities in 1979:

- To do thorough research into the English language needs and deficiencies of Black primary school teachers in a limited, but fairly representative, geographical area in South Africa, and
- To search for innovative approaches and/or technologies by means of which training and learning outcomes could be accelerated.

With regard to the first priority, a report, with guidelines for more effective training and inservice training of primary school teachers, was published as Special Issue Nr. 1 of the journal *Per Linguam* in 1985 (Odendaal, 1985). A second report ensued after determining and analyzing the relevant constraints which are prevalent in colleges where training and in-service training of primary school teachers are taking place (Odendaal et al., 1986).

As far as the second priority is concerned, reports about and meta-analyses of suggestopedic/SALT projects were studied, fact-finding missions with a view to learning more about suggestopedic/SALT language teaching were undertaken, SALT conferences were attended from 1983 (vide van der Vyver et al in INTUS NEWS, 8 (2), 1984 and various controlled experiments were initiated (vide e.g. Botha, 1986; Odendaal, 1987, 1987; Swart, 1987). It became increasingly clear to researchers and teachers that SALT could contribute significantly towards improving conditions in Black education and ultimately in education for all South Africans. Furthermore, discussions during the SALT conference in 1986 in Florida with representatives of Project Intelligence in Venezuela, as well as a subsequent study of the Harvard report(1983), led to the idea of developing an integrated package of material for the in-service training of primary school teachers. It became evident even then that an English language programme, presented by means of SALT into which thinking skills were incorporated in co-operation with leaders in the field of cognitive development, offered an ideal opportunity to prepare people for better and more effective participation, not only in all the subjects of primary and secondary education, but, indeed, in all the processes of society.

It was thus decided that a SALT course would be devised which would deliberately and systematically aim at improving the thinking skills, and more specifically, the problem solving and creative skills of primary school teachers by utilizing elements from Odyssey (1985), from Edward de Bono's CoRT (1986) and from other sources. It was argued that if language and thinking proficiency as well as defective teaching methods could be significantly improved, the entire range of problems in education for Blacks could be influenced positively, not merely certain aspects of it. Furthermore, it was sincerely believed that positive results could contribute significantly to improving human relations, to effecting more responsible participation at all levels of society and, subsequently, to stabilizing the crisis situation in the country.

Thus, on behalf of the Interuniversity Committee for Language Teaching, the UPTTRAIL Trust was launched on 27 March 1987 under the Chairmanship of Thembela, Vice-Rector of the University of Zululand, with the support of a number of prominent academics, educationists and businessmen. The reason for creating this Trust was to get an appropriate mechanism for launching, financing, monitoring and evaluating the envisaged pilot project. A further important task of the Trust would be to conceptualize the future of the project, that is the wider and intensified implementation of the programme after the expected successful completion of the pilot project.

What does the Pilot Project Comprise?

Since January 1988 materials had been prepared and didactic strategies had been selected for a three week in-service training programme for Black primary school teachers in KwaZulu. These materials had been based in the first place on a thorough study of the syllabi for the other standard three subjects; furthermore, they had been based on the needs analyses referred to above and on the advice received from de Bono and Capdevielle (Project Intelligence) and other consultants on cognitive development.

After the materials and didactic strategies had been prepared and selected, a statistically representative number of primary school teachers in KwaZulu received in-service training at the University of Zululand in January 1989. These teachers, who represented a universe of about 19000 teachers from about 1000 primary schools, underwent an intensive course, aimed at

-improving their English language skills,

-improving their teaching skills in grade five subjects,

-preparing them specifically for the teaching of English and thinking skills in an integrated package which had been prepared for this purpose SALT was used as a method, and

-the teaching of thinking skills for two periods per week in the mother tongue of the pupils, using elements of SALT.

The effects of the training on the teachers are being evaluated and compared with the effects of a conventional in-service training course on a statistically representative number of teachers in a control group. Progress with regard to self-image, English proficiency and thinking skills will have a positive effect on the quality of their teaching in general and consequently on the quality of pupils' learning. These teachers are being encouraged to apply at least some of the SALT principles and techniques to the teaching of subjects like mathematics and history. English, however, receives more specific attention. Thinking skills are incorporated in the English course which is being taught by means of SALT.

In the case of the pupils, assessments are being made with regard to their English proficiency skills, cognitive skills, scholastic achievement, pass and failure figures and compared with those of the pupils in the control schools. If it can be demonstrated that a significantly larger number of pupils passed grade five in the experimental schools than in the control schools, the prospects for wider implementation of the course will become favorable indeed.

An independent panel of internationally recognized academics are evaluating the research design, the execution of the pilot project and the research report and will make their findings and recommendations known.

Decision makers will be presented with the final reports and recommendations.

Guidelines and Principles

Since the inception of the UPTTRAIL Trust and the pilot project, a number of guidelines and principles have been strictly adhered to:

Involvement and acceptance by the community for which the programmes are intended, are of course essential. Therefore, educationists, administrators, community leaders and parents have been involved in the UPTTRAIL pilot project right from the beginning. UPTTRAIL is therefore seen as a project by us for us. Obviously the meaning of what has just been written will be (best) understood by people who are knowledgeable about the deep divisions in South African society.

Everything possible is being done to ensure that the eventual wider implementation of the programme in the primary and secondary schools will be as inexpensive as possible. In other words, the quality of education should be improved without making it more expensive.

The whole initiative is ultimately aimed at contributing towards unleashing the potential of each individual human being in South Africa (and maybe even beyond the boundaries of South Africa) and by doing so, at contributing to a healthier society.

Since the whole initiative is ultimately aimed at serving the interests of one South African nation and even of mankind, all endeavors are geared towards making this effort a national one and even an international one in the true sense of the word.

Considering the input, involvement and frequent visits of so many prominent SALT members and associates over the years, there exists at least some justification for the conviction that UPTTRAIL has become an international endeavor and that the SALT community members are important stakeholders.

The Social, Economic and Political Implications of the UPTTRAIL Pilot Project

Even today only a few men control the destiny of humanity. They often decide for all, and they are the only ones who can determine whether a war will start tomorrow or not, or whether an atomic bomb will explode or not.

But where are the rest of the people? Do they have a say in this? And if so, is what they have to say taken into account? It can be firmly stated here, with full awareness of the significance of the words, that no really democratic system exists in the world. Democracy in the full sense of the word does not exist. At best, there are some governments for the people, but no government **by** the people exists! Even in the so-called "model democracies", the people are not really ruling over themselves (Machado, 1982). Democracy is the result of the will and intelligence of all the people. To make democracy possible we can also generate within ourselves the faculties needed to live democratically. If democracy is the government by the people, the people's capacities must be developed and must grow continuously.

Throughout history the world has been governed by a few. But even worse is the fact that throughout history only a few have benefitted from one of the greatest achievements obtained to date by humanity: the corpus of scientific knowledge which increases day by day and which permits the development of the human intelligence and the human potential. The opportunity to develop intelligence has always been in the hands of a privileged few; major contributions to cultural development have always been made by minorities. The course followed by mankind has always been in the hands of those who were able to develop their inner capabilities, their intelligence to a greater extent.

If Nature or God had decided that, due to genetic reasons, human beings were to be totally different; if it had been previously determined that only some of them would have the capacity to rule and to be creative, what would be the point of a democratic ideal? If Nature or God had created only a few superior human beings, it would have meant and still would mean an injustice in nature which would be almost impossible to overcome (Machado, 1980).

But today we know (and have sufficient and a still growing body of scientific evidence which affirms) that this is not the case; we now have enough scientific knowledge which maintains that for all practical purposes all men are created equal in nature, all normal beings have the same potentiality (Machado, 1980).

Nobody is born intelligent; everybody is born with a potential to become so. Nobody knows how to speak at birth, but is born with a capacity to talk. Genetically, a child is born with the capacity to walk, but he has to learn.

Likewise, a child is born with the capacity to think, but again this capacity has to be developed through learning.

If man can indeed develop his cognitive skills, all possible efforts should be made to achieve this goal as soon as possible. It is our duty to accelerate this process. It is a matter of striving, by all the means at our disposal, to place in the hands of the people, with no exception whatsoever, the benefits of modern scientific knowledge about the development of human potential in general and about the development of thinking skills specifically.

Intellectual independence is a necessary condition for achieving economic, social, and above all, political independence. The worst of all colonialisms is cultural colonialism. The existing inequalities will not be amended unless the ones that exist between men are first corrected.

The democratization of knowledge is a basic requirement for a true democracy in which all individuals can receive the benefits of knowledge, achieving at the same time an active role in the country's development and in the determination of their own destiny.

Clemençeau once said, "War is too important to be solely left in the hands of the generals". Today it can also be said that the corpus of knowledge regarding the development of intelligence is also too important to be left in the hands of scientists, just as politics is too important to be left in the hands of politicians.

The position that each man/woman adopts towards the issue of the development of intelligence substantially determines his/her attitude towards life. By itself, it represents an ideological revolution. By transforming man, making him more intelligent, we will be transforming society.

The UPTTRAIL pilot project is a significant endeavor to place the benefits of knowledge in the hands of all people, beginning with the most underprivileged groups of South Africa. Initially, the idea was to teach English as a second language in an accelerated and efficient way, in order to have more effective teachers teaching through the medium of English and, consequently, to give the Blacks in South Africa a better opportunity to participate in the social, economic, and political life of the country.

Later it was realized that a one-sided emphasis on language proficiency was not enough. It was not sufficient to speak and understand a language in order to participate in a society. It was necessary to be able to speak and understand the language with a complete comprehension of what one is being told, and with a clear idea of what one wants to say. Hence, the transcendental decision to include the systematic teaching of thinking skills as a fundamental aspect of the pilot project was taken.

The ultimate goal of the pilot project is the achievement of total and responsible participation by all members of society, especially the Blacks, in the social, economic, and political life of South Africa.

The UPTTRAIL pilot project is an example of a sound attempt to democratize knowledge as a means of democratizing intelligence. It is a step toward the mountain. A very fundamental step.

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International SALT Congress. *INTUS NEWS, 8*(2), 53-60.

In diesem Artikel, van der Vyver zuerst gibt das ziel des UPTTRAILS VERSUCHSPROJEKTS, naaemlich, zzu schlaagkraeftlich beweisen, dass es die vonThembela in dem vorhergehenden Artikel umgerissende Beuerfinisse wirkkkkungsvoll in betraacht ziehen kann. Zweitens, er beschreibt die Bestrebene die den Anfang des Versuchsprojektes und des verwaaltenden Bildungstrustes voraussgingen und beizutrugen, zum Beispiel:

- die Forschung in Sprach Beduerfnisse in Ausbildung der Schwarzen.
- die Forschung in Neuerungen einfuehrende Zugaenge, wodurch ausbildende und Gelehrsamende Verrichtungen Koennten beschleunigt werden.

Drittens, eer bescreibt das versuchsprojekt, indem ein darstellendes versuchsstueck der KWAZULU Leheren wurde Aenglische, lehrende, und denkende Geschicklichkeiten ddurch SALT gelehrt. Dann wurde das versuchsstueck weiter gebildet, die Schuelern Aenglische und denkende Geschicklichkeiten zu hehren, auch durch die SALT methoden. Die Wirkungen des Kurses werden wissenschaftlick durch vor- und nach-pruefen den nachsuechtigen und Schuelerishcen Beaufsichtigungen uebergewacht un abgeschaetzt worden.

Einigen wichtigen lenkenden Punkten werden angezeigt, zum Beispiel:

- Mitarbeit mit der eingewickelten Gemeinschaft wird allerzeits erhaltet werden.
- weitere Durchfuehrung der Programme wird nachgestrebt werden.
- Losbindung des Menschlichen Potentials nicht nuer von allen den sued Afrikanern, aber auch von Schuelern, ausserhalb der Grenzen des RSA's, wird das aeusserst Ziel

sein. Das Project ist schon eine internationalische Bestreben geworden.

Im zwieten Teil des Artikels, Capdevielle kehrt die Beobachtung an die sozialischen, wirtschaftlichen, und politischen Hinweisen des Versuchsprojektes.

Es wird behauptet, das echte Demokratie, das heisst, Regulierung bei dem Volk, existiert nicht, denn es keinen "demokratischen Mann" gibt; das heist, einen Mann, der nichts nuer Demokratrie will, aber auch die Faehigkeit hat, demokratisch zu leben. Ueberall in der Geschichte ist der Welt durch "die wenigsten" beherrscht worden.

Capdevielle begruendet, dass ueberall in der Geschichte haben nuer wenige Leute beguenstigen von dem aufwachenden Korpus Wissenschaftliches Wissens, der die Entwicklung Menschlicher Intelligenz und Menschliches Potentials erlaubt. Ungleichsamkeit der maenner war nicht genetisch vorgesagt. Sie alle haben mehr oder wenige dieselbe Latenz, dieselbe Faehigkeit zu denken. Jede Bemuehung soll gemacht sein, dieses Potential zu entwickeln. In einer echten Demokratie, Wissen soll demokratisiert sein, um dass alle eine Rolle in der Bestimmung ihres Schicksals spielen koennen.

Endlich, Capdevielle zeigt an, dass dieses UPTTRAIL Versuchsprojekt versucht die Wohltaete des Wissens in den Haenden aller Leute zu stellen, um total und verantwortliche Teilnahme von allen Teilnehmern der Gesellschaft, insbesondere den Schwartzen, zu erreichen, in dem sozialistichen, wirtschaftlichen, und politischen Leben Sued Afrikas.

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Training Music Sight-Reading and Perfect Pitch in Young Children, As a Way to Enhance Their Intelligence

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and

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Abstract. The following paper suggests an experimental program for easily training children, ages 1-5 years, to sight-read and play music and to gain relative or perfect pitch. By integrating phase relationships between widely separate, key regions of the brain, the writers propose an easy, game-like procedure that will significantly increase the lifetime intelligence of children.

*** *** **

As simply as this:

1) Face the young child away from the piano or other keyboard instrument, as part of a game.

2) Sound a single note on the piano, while playing (or singing) the name of the note - "A", "B" or whatever. (Flats and sharps can be introduced a little later in this training, other than being named when hit during the child's "miss".)

3) The game is to have the young child turn to the keyboard and try to hit the same note on the keyboard - on first try if possible. When s/he strikes a single note, say or sing again the name of the note struck - but the "hits" then get reinforced with laughter, applause, hair-tousle, hug or whatever is reinforcing for that child in a light-hearted kind of way. The "misses" are part of the game but are less reinforced - too absolute a non-reinforcement would be another kind of reinforcement and the game should be kept light-hearted.

4) At the same time in each round , a 3" x 6" or larger card is set vertically on the music rack above the keyboard, just a short segment of base and treble clef bars and, prominently, the note you're about to hit.

Don't point out the card. Just change the card each time to the next note you're about to hit. It may be immediate, or it may be several hours long (spaced over several weeks at 2 to 5 minutes of this game each day or so), before the child catches on that the card has something to do with the note you are hitting. Only when s/he asks about it do you minimally explain that where the note is on the card, shows where the note is on the keyboard. Now the child has both eye and ear to help guide him or her on the keyboard.

After the child has the first game well in hand (including, eventually, those sharps and flats): you can do the same thing with sequences of 2 and 3 notes.

Once that skill is well in hand, simple tunes will make sense to the child and be well within his/her competence to likewise pick out and play.

From there, the child will be well equipped to take full advantage of conventional music training if desired, or of (now widely available) Suzuki training, which is excellent for developing playing skills and attitudes. If you use Suzuki, though, continue to reinforce the sight reading, on the side or at home, since Suzuki training does not teach sight reading until much later and it'd be a pity to waste the reading skills already developed. Even without such follow-up musical training, though, a major boost to the child's intelligence will have been accomplished by the above game.

Children too young (or developmentally too young) to as yet be able to pick out a single key on a conventional keyboard, may be able to do so with full benefits by being started on a special keyboard whose individual keys are broader, so long as its pitch is true.

(The above technique was created by Susan Wenger during October, 1989.)

Purpose of this technique

The purpose of this technique and game is not that of training the child to become a musician. That may indeed often develop, and a musical perception and background makes for a far richer and more rewarding lifetime experience, but the purpose here is not that of making the child into a musician.

The purpose of training perfect pitch and music sight reading skills, in children between ages one and five years old, is to substantially improve their intellectual intelligence for a lifetime.

We predict that normal children ages 1 to 5 years will, within several years, average more than ten points "I.Q." higher and may well average more than a full standard deviation higher (see discussion below). Older children, and developmentally young people of any chronological age, are also expected to make substantial gains from another brain-building procedure, Image Streaming as discussed below, to be very gradual although these gains continue developing for some time beyond the interval during which Image Streaming was practiced. In very young children who Image Stream, we've seen instant and extraordinary gains in understanding, in apparent intelligence and in language skills.

Even in adults and college students, the eventual gains from Image Streaming, per eighty minutes of practice, add up to a full point I.Q. so we expect substantial gains with this music procedure even with older children. However, the greatest and most immediate gains may be expected with children who are so young that most of their habits and short-cuts for perceiving and thinking have not yet been formed and who for that reason, can obtain the most benefit from a given amount of such training.

Why should such training as this bring any benefit in terms of intellectual skills or intelligence? Can an early experience in music relate somehow to later academic abilities?

Why are people who learn, early in childhood, to sight read and play music, usually several standard deviations above average in intelligence? It's long been assumed that they had an inborn natural "gift" - most of which, of course, are never developed. Early economic and cultural disadvantage can be a preventing factor, though ours is an information-pervasive environment. There definitely do appear to be some instances of special "gift". Recent discoveries, however, poiint toward early musical development itself being a main cause of this sugbsequent higher intelligence, not merely a co-by-product of social privilege or the magic wand of a "genius gene".

Discovery of Brain-Integrative Factors

The phenomenon of Image Streaming (defined below), was discovered early in 1975. From that time on, we observed that the practice of Image Streaming enriches the intelligence of its practitioners. In 1984, we developed a simple hypothesis to account for this increase in intelligence (as set forth below). In spring of 1989, with the results of the Reinhert Study, which formally measured some of the effects of Image Streaming on physics students at Southwest State University, this hypothesis, called "Pole-Bridging", became a supported theory.

Definitions

Image Streaming is the practice of letting oneself become aware of the spontaneous free-flow, free association, visual mental imagery which is going on all the time as a reflection of unconscious perceptions, thoughts and understandings. Part of this practice also is the describing of these images aloud while examining them. To be effective, this describing must be out loud, to an external focus - a person as a listener, or a tape recorder.

This is quite different from the directed imagery which is familiar to many people and programs. Image Streaming, being undirected, when brought conscious constantly surprises the viewer with unexpected images and associations. This imagery appears to arise in other, subtler-signalling regions of the brain. This different location is significant in giving rise to higher intelligence, according to the theory of Pole Bridging.

This constantly ongoing stream of images is usually unconscious, but virtually every person can readily self-train or be trained to bring this stream conscious. (Wenger & Wenger, 1981). That general ease of training, in turn, makes Image Streaming an excellent candidate for any program which seeks to improve the intelligence of large numbers of people. In the aforementioned study, students who practiced Image Streaming as an enrichment outside of class, gained in general intelligence at a rate of a full point's "I.Q." per eighty minutes of practice, among other benefits.)

Pole-Bridging - Combines in expressive form the activities and/or perceptions which are characteristic of widely separate regions of the brain. One should involve these perceptions or activities closely and intensely together, so that those widely separate regions of the brain are forced to work closely together.

-In Image Streaming, the left temporal and parietal lobes (expressive and articulative, and specific associative) are caused to work closely with the right temporal lobe (making general sense), and with wide additional regions of the brain including apparently the right optic chiasm at the rear of the brain.

-In the above method for developing both sight reading and music playing skills and relative or perfect pitch, much of the motor cortex is involved with the left temporal (reading recognition), the right temporal (music and aesthetic response), and with wide-ranging auditory regions of the brain. In addition, one of the writers, who enjoys perfect pitch, speculates that this automatic ready-made auditory orientation becomes a great help to all the areas of the brain which make sense out of sound or otherwise sort out sounds. (This hypothesis, concerning effects of perfect pitch, might eventually be tested by bio-instrumented comparison of the brain behaviors of persons with and without perfect pitch, in response to diverse auditory stimuli.)

Obviously, causing widely separate regions of the brain to work closely together, by building up communication between those regions, will cause the resources of each such region to become more available to the operations proceeding in the other regions. This is a factor in the increased intelligence observed to follow such Pole-Bridging activities. A still more significant issue in Pole-Bridging, though, is the factor of Phase Relationships.

Phase Relationships concern the length of time between when one part of the brain receives a stimulus and when other parts of the brain become involved in the processing of that stimulus.

Significance of Phase Relationships:

All of the brain sooner or later lights up on any major stimulus. The length of time before this happens, though, is the critical issue. Ertl (1967) Ned Herrmann (1989) and others have consistently found for decades that closely integrated phase relationships between left and right hemispheres, at least, are associated with higher intelligence, and wide lags with lower levels of intelligence. One of the writers found this same relationship in studies he performed on his own students during 1969-70 and again in 1970 in testing eight pre-identified geniuses.

If there is too great a delay between the time when some initial part(s) of the brain get(s) that stimulus and the rest of the brain thence receives that stimulus, then the first part completes its operations and writes close-out instructions into that stimulus as it is passed along into the rest of the brain. (In effect, the first part says, "That's the way it was done, folks!" and the rest of the brain, saying "Yeah," shuts down.)

If the phase relationship is closer, however, other parts of the brain are reverberating with the first on that stimulus before the first has completed its processing. What results then is a much more involved set of instructions getting written into that stimulus as it is passed along into the rest of the brain. (In effect: "Here's what we've come up with so far, folks, but there's this to be checked, that to be investigated, with such-and-such still to be found out!")

A brain so instructed does many more things, and much more involved things, with that stimulus. Consequently:

A person with well-integrated, close phase relationships (not only left-right but, apparently, in all directions within the brain) will sense more relationships, perceive more and richer meanings with that stimulus and generally. -In other words, be considerably more intelligent.

The Reinert Study (1989) supported this theory of Phase Relationships and Pole Bridging, in 3 ways:

1. The overt, overall gain in intelligence of Image Streamers at a rate of a full point of "I.Q." per eight minutes of easy home practice, a considerably greater rate of gain in intelligence than by other means thus far studied.

2. In perceptual and learning styles, the students who Image Streamed zipped strongly and immediately into

integrated balance. Students who enriched with a different method, as most college physics students do during their course of study, moved sharply further toward extreme imbalance.

3. The combination, between image streaming and describing aloud, was crucial to the outcome. Those students in the Reinert (1989) study who did everything also in the procedure but did **not** describe aloud their images to a listener or to a tape recorder, not only did not gain as much as those who did so; they showed no gain whatever during the interval of the experiment! It is the **combination** of these regions of the brain which is significant in increasing intelligence and in the other benefits associated with Image Streaming or other forms of Pole-Bridging.

New studies are currently underway, three by Reinert, and one by one of the writers in a project graciously funded by the I. A. O'Shaughnessey Foundation. These studies are further testing the theory - that to integrate phase relationships between regions of the brain, by Pole Bridging between those regions (combining their several activities into some expressive form), increases intelligence.

Relationship to the proposed early training of music skills in young children:

As an excellent further test of this Pole Bridging theory, we suggest a longitudinal study of intellect and intelligence in young children taught as described at the start of this paper. Such musical Pole Bridging integrates brain behaviors which are very different from those of Image Streaming, and brain regions which are somewhat different. If the behaviors so integrated are different and intelligence still increases substantially, then the common factor causing the increase will be the integration of diverse brain functions - the dynamic principle,not just the particular brain behaviors which happened to be combined in the one lucky technique of Image Streaming.

The prediction is that young children who learn these music skills by such a method will enjoy more than 10 points I.Q. advantage over children who are not so trained. To be frank, this average advantage in intelligence could well be in the range of 25-35 points I.Q. or even higher - with all that this can mean in terms of a lifetime of enriched experience and in terms of potential contribution to our society and culture.

If this prediction is confirmed in the context of music training, that should cause a significant increase in public support for the arts and for arts education. As already shown at the start of this paper, the procedure is certainly simple and easy enough to make testing this proposed experiment feasible for any reasonably competent musician, music teacher or music education program which can also arrange access to the appropriate child-level I.Q. tests. Even ordinary parents, sibling or tutors who at least know musical notation should be able to conduct this program successfully.

Such further confirmation, from another context, of the Pole Bridging Theory, should encourage further investigation and development of this theory. Given the great number of brain functions, and of the identified regions of the brain where some of these functions are localized, it should soon be feasible to create 10,000 different specific Pole Bridging techniques, each effective in increasing intelligence, or as therapies and/or remediations.

To research and test any of these, at least in an educational context, will qualify the researcher to receive graduate academic semester credits, not just Ceu's, at a respected mid-Western state university's department of education (not Southwest State University, which is outside of such arrangements so its physics department can pursue those researchers a little longer without any reason to become biased.) Teachers and others who can use such academic credits may contact the writers for details, care of this publication.

Complete step-by-step instructions for how to learn, practice, teach to other individuals and groups, and apply to practical uses, the Image Streaming procedure, at least, are widely available. (Wenger, 1989). This present paper is the first and thus far only publication of the proposed procedure for enabling very young children to sight read and play music and to develop perfect or relative pitch, generally or as a means of increasing intelligence.

The one Pole-Bridging procedure already tested, Image Streaming, is remarkably easy to learn and perform. Yet it also has been demonstrated to increase general intelligence a full point "I.Q" for every eighty minutes of home practice (at least among mixed college-age and adult college physics students). The proposed procedure for teaching very young children music, sight-reading, and perfect or relative pitch, which likewise seems to produce substantial and rapid improvements in general intelligence, also is self-evidently "painless" and easy. Weigh this against the pain, effort, and foregone opportunities associated with less than high intelligence in many contexts. Add to this balance the lifetime enrichments which naturally accompany musical background and awareness. Given this combination, to undertake the proposed research should prove highly productive of human benefit, in addition to the advance of scientific knowledge about the human mind and brain.

With Pole Bridging appearing to be a major strategy generative of many possible techniques to restore or improve key sectors of human well being, and, moreover, because of the ease of such techniques, research in this area appears certain to produce many significant findings, and a higher career standing for many professionals.

Given this combination of effects, we strongly recommend to the attention of fellow professionals, especially of musically involved professionals, and to educational institutions, this proposed longitudinal study. We propose that you measure the effects upon intellect and intelligence, of training children between ages one and five years, by the easy method cited here, to sight read and play music and to enjoy relative or perfect pitch. If you undertake this study soon, its results will dovetail with the results of other investigations of Pole Bridging which are currently in progress. That coinciding of studies will be of higher scientific value because these will involve different brain behaviors and context. Evidence strongly suggests that your study will not only advance the well-being of the particular children in your study, but advance the time when the relevant benefits to humanity can be pursued on a broader basis.

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Das folgende Papier andeutet eine Versuchsprogramme fuer die einfache Ausbildung der Kindern, (ab ein-jaehrigen, durch fuenfjaehrigen), Musik anblicklich zu lesen, Musik zu spielen, und bezuegliche oder vollkommende Tonhoehe zu entwickeln. Durch die Enfuegung der

Phaseverwandschaften zwischen weit getrennt, haupt Gebieten d Gehirns, die Verfassern schlagen eine ein-fache, spielgleich Behandlungsweise vor, die die Leben-zeitliche Intelligenz der Kinde bedeutsamlich vergroes-sern wird.

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BOOK REVIEW

In Search of the IQ Correlation: A Scientific Whodunit

By Renee Fuller

Stony Brook New York: Ball-Stick-Bird Publications, Inc.

Reviewed By
John Senatore

"Apparently IQ tests and the educational system are so tightly linked that one is descriptive of the other," Fuller wrote. "When one is changed, the other must be changed." Here is a scientist forced to look at intellectual functioning in a new way.

Quite unexpectedly, severely retarded students, IQ's in the 30's, learned to read with comprehension and perform academically with the system intended for superior students thereby raising basic questions about the concept of intelligence and IQ tests. Continued replication of concrete data shows, according to the author, something is wrong with IQ tests, our concept of intelligence and our basic educational assumptions.

I started with Chapter 3: Does IQ Exist in the Real World (a readable history and review of IQ founders, the misuses/abuses of IQ tests and a reminder that the construct "intelligence" is a modern one). Then I read Chapter 1: The Search for the IQ Correlation to discover the three assumptions questioned by the data: IQ tests predict academic performance; reading comprehension is a direct reflection of intelligence; abstract behavior is a reflection of intelligence, Then I read Chapter 4: A New Theory of Intellectual Functioning: Is Intelligence a Viable Construct? (I enjoyed Fuller's observations since they pre-date Howard Gardner's theory of multiple intelligences and Robert Sternberg's triarchic mind.) I completed Part I by reading Chapter 2: The Implications for Learning and Education: Do We Make it as Computers?

U.S. ENGLISH Update FILE FACTS reported that 67 million USA adults read below the 12th grade level, 27 million below the 8th grade level; 60% of USA prison inmates are illiterate and public assistance for those unemployable due to illiteracy costs the USA as much as $5 billion a year, These constitute reasons I recommend this book: literacy and how a pleasurable, multi-dimensional reading series (Ball-Stick-Bird Reading Series) allowed learners to "utilize their strengths, their abilities and thereby bypass their weaknesses, But once their abilities had come into play, the students became intellectually very different from what they had been before "...[a] change [that] presents a serious challenge to intelligence theory" The students (26 from Maryland's principal institution for the retarded) were failures in spite of the best attempts of modern education.

Before Gardner labeled cognition as the Mind's New Science, Fuller noted: "Our students exhibited cognitive change. However, the extent of cognitive change was highly individual and not test correlated...students find a holistic or abstract approach more effective than a rote approach."

Fuller's Ball-Stick-Bird Reading Series features multifaceted tasks, tasks that call up multiple learning modes, multiple intelligences (using language popular now). These allow an organism to utilize her own mix of abilities so that strengths in one area compensate for weaknesses in another area. "It allows for an important aspect of intellectual functioning, namely, compensatory organization. Each individual intelligence thereby is its own system." And we have the tools and technology to individualize instruction, tailor-make learning-systems, once they have been effectively designed.

In a section "The Mind of the 21st Century," Fuller calls for looking at intellectual functioning (instead of the reification intelligence") as an emergent living system, centered in discovering first how an individual is organized (Echoes of Syngg and Combs' individual behavior and NLP's study of the structure of subjective states-since behavior results from those.)

"The purpose of education in the future would be to train people to call into play their various abilities thereby producing cognitive change." Yes, a necessary reminder: Learning is change; no change, no learning. Fuller continued, "Our success is measured by the extent to which we got cognitive transfer. The pleasure we gave was an important and unexpected dividend."

Reframing intellectual functioning as a living system, we alter our expectations about what can be done with education. "By tapping the abstract thinking potential of our species, we may be able to open a capacity for intellectualization, a capacity for understanding the universe, which up to now has been beyond our scope. When we do this, we will make it possible for the human brain to soar into space where it belongs."

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BOOK REVIEW

The Explorative-Creative Way: Implementation of a Humanistic Language Teaching Model

By

Wil Knibbeler

Tubingen, Germany: Gunter Narr Verlag

Reviewed By:
John Senatore

The Explorative-Creative Way aims to integrate the Silent Way, Suggestopedia, Community Language Learning, Confluent Education and the Natural Approach into a coherent system. I like integrating models; I like Humanistic models; I like reports on implementation. The book reveals that the author knows what he is talking about. I like news, and the book has news for me.

Twelve chapters make the book: Two chapters on Approaches (Humanistic Approaches and the Natural Approach); one chapter on the Integrative Model; one on the Good Language Learner's seven traits; three chapters on research design, instruments, answers; and some of my favorite chapters: Principles and Implementations; Guidelines for the Teachers and the Teacher's Personality. The Index Didactic Procedures is worth the price of the book for reference and use. Furthermore, the book is concise, candid, documented and readable.

Nineteen different teachers of nine different languages, who had been trained in implementing The Explorative-Creative Way, were observed in order to determine the impact of the teacher's personality on the implementation of a new approach. These teachers were compared to eight teachers who were considered to be successful in language teaching but were unfamiliar with The Explorative-Creative Way. This Way is designed for beginning, intermediate and advanced language learners, "for the operating principles are basic components of all language acts at all levels, an attitude rather than a specific teaching method or language course."

The project was aimed at establishing how the Explorative-Creative Way works and not how well it works, what its teachers do--and not what its results are. The limitations in objectives and implementation and data collection and analysis are repeatedly and duly noted. I longed for an end to "yes-but-isms," arguments and wrangling among language teachers, and this book shows the large number of variables involved in human teaching and learning.

At the SALT San Diego Conference, I addressed the importance and the neglect of teaching models (constructs in this case, not persons); the lack of intentional conscious use of teaching models; the failure to instruct teachers in designing teaching-learning systems (models); the fact that many teachers may not know dominant models running educational processes. Knibbeler wants to describe the Way and to account for the experiences of those who worked with it; he also wants to describe (with evaluative research) how teachers adopt/adapt this model personally. He succeeds. I long for the clarifying impact and changes in presentation that occur when research and documentation are used in the context of a strong awareness of the Universals of Models and the function of models. For example, did the study adequately differentiate between training and educating models? Successful teachers were observed to be high in Exploration and Creativity, so "This finding enables use to establish a hierarchy between the Operating Principles in the sense that Exploration and Creativity are situated at the top of the taxonomy." Used appropriately, this book can contribute to successful teachers and the training, and the education, of successful teachers.

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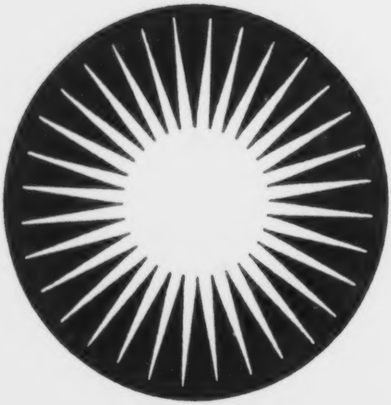

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The Editor welcomes submission of manuscripts with a focus on accelerating and improving teaching and learning, particularly with classroom suggestion or Suggestopedia. This journal publishes articles on: critical reviews, theoretical analyses, speculative papers, case studies, quasi-experimental studies, as well as reports of controlled studies of empirical research.

MANUSCRIPTS should be typed on one side of standard 8 1/2 x 11 bond paper. Do NOT use ditto. The original and 3 copies of all materials should be submitted, but the author should keep a copy for checking proofs. All material should be DOUBLE-SPACED, with ample margins on all 4 sides. Typical length is about 20 pages, including footnotes, tables & figures. Longer papers may be suitable in some cases.

REFERENCES should follow APA style according to the latest American Psychological Association Style Manual. See any issue of this Journal for examples. In the body of the text, the work of other authors should be referred to by name and publication date in parentheses as follows, "Xia and Alexander (1987) reported..." In the references the referred-to articles should be listed fully in alphabetical order by author(s), title and publication source information as follows, "Voci-Reed, E. (1987). Teaching adult learners using accelerated learning. Journal of the Society for Accelerative Learning and Teaching, 12 (1&2), 85-94." Footnotes should be used rarely, if at all.

TABLES and FIGURES should be kept to a minimum, and should supplement rather than duplicate the text material. Each table should be typed on a separate sheet of paper and placed at the end of the manuscript. Figures should be submitted in a form suitable for photographic reproduction: use India ink on a good grade of drawing paper. Photographs (black and white only) should be 5x7 glossy prints.

An ABSTRACT between 50 and 200 words should be placed at the beginning of the manuscript. The abstract should include: purpose of the work/study, design, method and description of subjects, and results &/or conclusions.

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Letter from the Editor

It is with great pleasure that I address this special audience in my role as editor. I hope that you find the selected articles useful and stimulating. I am happy to announce that with the help of our president L. Palmer, we have obtained permission to publish selected papers from last year's Soviet conference on Salt which will appear in the next Special Issue along with other international contributions. Our journal is at the forefront of the field of education as brain-based and socio-cultural models become increasingly refined. I hope that many of you take initiative in ensuring that the journal is received in your local and regional libraries. As many of you know, frequently calls come inquiring about this model or approach.

At present, we are trying to broaden the scope of the SALT journal to include a variety of theoretical perspectives and research studies that have a sound methodological base. In helping to make our journal a main stream forum for new educational innovations and theory-based applications, I believe we can continue to increase our impact on educational practice and teacher education. I hope to attract papers from both mainstream and "cutting-edge" origins that bear on advancing development.

We need your help in attracting quality research, applications and theory-advancing pieces. Part of the reason for the recent delays in getting the journal out to you has been the fact that for the last year, the latter have been scarce. We need to get the word out that this journal serves as a showcase and forum for competing paradigms with educational implications. So in closing for now, I'd like to invite you to write with your comments and suggestions for the future of our very promising journal. At the same time, I need to acknowledge the great contribution Don Schuster has made and continues to make on behalf of the society's journal. We will all have to actively participate and promote the journal to safeguard those efforts and achievement of the last 15 years.

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On the Inner Relationship between Qigong and SALT

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Abstract. Qigong and SALT have a common mechanism for activating the potentiality of human accelerative learning. In particular, the activities and contents of breathing, physical and imagery adjustments of Qigong have parallels in SALT.

Introduction. About 5,000 years ago Qigong was used in education in a broad sense. The chiefs of various tribes in China educated their people by the method of "Adjusting the five Qi's" and "Adjusting Qi for educating". In the Zhou Dynasty (ca. 11th century - 256 BC), the philosopher, Lao Zi, expounded the idea of "managing learning by adjusting Qi," and "being in the great void and keeping extremely calm and believing all nature to be in one state before you". Kong Zi (Confucius) thought successful learning depended on "cultivating one's moral character and attaining mental tranquility".

Zhuang Zi maintained the opinion "understanding by one's whole personality" and "understanding enriches one's personality" (Li Han-wen et al., 1988). Yet the more conscious combining of Qigong with education would be by Zhou Dun-yi, an idealist philosopher of the Confucian school in the Northern Song Dynasty (960-1127). He advocated "being quiet and calm underlies education". This idea was explained by Cheng Hao who said the "good learners would be calm ones" (Xie Fang-zhang, 1988; Yan Fu-chen, 1986). Cheng Yi's conception was that "students who sit down quietly would be eager to learn". In the Southern Song Dynasty (1127-1279), the famous philosopher Zhu Xi wrote a book entitled *The Exhortation of Adjusting Yourself* [Tao Xi Jian]. He taught students with "half a day to learn, and half a day to sit quietly". Contemporaneously, another teacher, Lu Jiu-yuan, said, "A learner can learn well if he/she closes his/her eyes often" and "sitting down comfortably and meditating will result in one's mind becoming clear." About the year 1500, the scholar Chen Xian-zhang always asked his students to sit down quietly long enough to get confidence readily. Wang Min-yan thought of quiet sitting as a method of getting into the frame of mind for learning. In his book *Conditions for Teaching* [Jiao Ye], applied the principles and methods of Qigong to teaching. Specifically he applied all Qigong's physical, imagery and breathing adjustments, and Qigong's natural relaxation and calm to his teaching practices. He felt that through these ways teaching could shape the students' "moral strength" and "make them feel more clear and comfortable" (Yan Fu-chen, 1986). In the above scholars' works, the word "Qigong" did not appear, but its principles and methods were so mentioned. Moreover these methods were used to maintain the best state of mind for learning, and not to become monks.

From this review, we can conclude that some early Chinese scholars were sure that Qigong and its methods were favorable to learning. Nevertheless, only in the last decade or so have scientific experiments been made on applying the principles of Qigong to learning.

By now, the reader is probably wondering, exactly what is Qi? China Sport (1984) defines Qigong as a series of breathing exercises aimed at stimulating the vital energy so as to strengthen immunity to disease and the ability to repair internal bodily damage. All forms of Qigong involve the regulation of three mutually dependent basic processes: posture, respiration and thinking. A sample will be given later on.

Major Principles of SALT. In the 1960s, Dr. Georgi Lozanov, in Sofia, Bulgaria, introduced his Suggestopedia. American psychologists have developed this into a broader theoretical technique called SALT (Suggestive Accelerative Learning Techniques). Other similar terms are SuperLearning, Suggestopedia, and Accelerative Learning. We will use the term SALT in this thesis. SALT was partly established on the effective application of Qigong's principles to learning. Lozanov (1978, p. 69) was interested in Qigong and found that memory could be accelerated by it (Shen Fan et al., 1982, p. 69-71). He studied and researched Eastern exercises which could affect the state of mind. He showed that when one relaxes physically, synchronizes mental activities with those of the physical body, coordinates left and right hemispheres of the brain, harmonizes conscious with paraconscious, sets up confidence in his/her learning, then the reserves of learning would be opened and superlearning could take place. Lozanov used these methods or means: Intonation and Rhythm, Authority, Infantilization, Double-planeness and Concert pseudo-passiveness. Both Intonation and Rhythm have a key position in super memory. Although Lozanov's Learning Technique has developed into the more theoretical and practical SALT, perhaps we can enrich it with Qigong theory.

Review of Qigong in Helping Learning. In recent years many magazine articles and many books of Qigong have been published. Qigong research also has developed fast, especially the mechanism of Qigong itself and applications to medicine and education. Qigong is conceived of as science with both a public and private nature. Any person can do Qigong and each can acquire experience and accumulate his/her own feelings about it. Qigong can produce effects not understood by modern science. The author, a teacher of Physical Culture and Sport Psychology has done Qigong exercises for more than two years. He firmly believes that Qigong can help learning by cleaning up one's mind, maintaining attention and utilizing one's own mental resources.

Qigong learning research in our country has focused on cause and effect: after doing Qigong exercises, how is learning improved. There have been about a dozen scattered reports of experiments on how Qigong affects learning. Yang Yun-Lian's (1986) research was quoted in the lecture on "To Establish

Phenomenalistic Qigong" by the famous Chinese scientist Qian Xue-sen. The research "Experiment on the Effects of Qhenqi's Running Exercise upon the Academic Achievement and Physique of Middle and Primary School Students" was published in the journal *Qigong and Science* (1986). The subjects (Ss) in this experiment were 77 middle school and 66 primary students for a total of 141 (75 males and 65 females). The experimental Ss did the Still and Moving Qigong exercises for 20 minutes prior to the first afternoon class, and prior to every important class the Still Qigong exercise was done for 2-3 minutes. Then the teacher asked the students to pay attention to the lesson. After class the students meditated on the lesson summary for three minutes. This experiment lasted 100 days. The following tests of memory, mathematical ability and academic performance were used.

Memory. Remember items from a list of 50 common words with a given study time.

Math calculation. Complete within a given time groups of math questions with different arithmetic operations.

Math judgment. In a list of numbers, judge which numbers are rational, irrational, or infinite fractions.

Idea expression. Within a given time, make sentences, extend or condense them, or write a passage.

Graphic analysis. Within a given time, analyze charts or pictures.

Vision. Visual acuity for information on a standard chart.

Manual dexterity. Within a given time, use a pair of chopsticks to remove glass balls from a box.

Body weight. Use a certain balance.

Retest averages are given in Table 1 for the Experimental group ($N=71$) and the Control group ($N=70$); all differences were significant ($p < .001$).

Table 1. Means for Experimentals and Controls

Test	Experimental	Control
1. Math related	9.21	-23.04
2. Language related	26.53	-0.67
3. Left eye change	0.13	-0.03
4. Right eye change	0.13	-0.03
5. Body balance	1.78	0.81

The experimental group improved significantly (p < .001) over the 100 day Qigong treatment, with Math and physics scores rising from 58.45 to 66.22 and Chinese language scores rising from 50.11 to 75.65. However, similar retest data for comparable controls were missing.

Also the experimental group improved significantly (<.001) over the 100 day Qigong treatment, with Manual dexterity scores rising from 17.5 to 24.8, with Weight rising from 36.8 to 38.8 Kg, with Left visual acuity scores rising from 0.88 to 1.12, and with Right visual acuity scores rising from 0.98 to 1.10. Again, similar retest data for comparable controls were missing.

Yang Yun-Lian concluded that Qigong exercises helped students improve their learning and their health.

Here are data from another researcher. Zhao Zong-yi et al. (1988) did a Qigong experiment to help learning with fifth grade students in a primary school affiliated with Shan Xi university. Both the experimental and control classes were pretested as well as posttested. The experimental group did Qigong exercises daily for four months.

The following tests of memory, math and indicators of academic performance were used.

Memory. (a) Use the Movement Test Instrument (DGS-6) to test Ss who listened to the instructional tape on how to operate the DGS-6 instrument. Then Ss made mistakes if they did not remember how to operate the machine exactly. Criteria were total operating time and number of mistakes. (b) Study 2 large aggregates of 9 smaller pictures for 1 minute time each. Remember details.

Math. Complete groups of math items with different arithmetic operations, working for 30 minutes.

Academic performance. Math and Chinese language were tested by the school standard examination papers before and after three months of Qigong treatment (not the previous four months).

Posttest averages and standard deviations are given in Table 2 for the Experimental class (N = 45) and the Control class (N = 30), along with significance levels for differences between the means.

Table 2. Means and standard deviations for Experimental and Control classes along with probability levels of significance

	Experimental		Control		
Test	Mean	SD	Mean	SD	Prob.
Memory(a)	2597	902	3768	2250	.05
(b)	76.86	11.24	58.11	17.94	.01
Math calc.	55.19	15.13	46.43	12.47	.01

In the Chinese language exam, the passing rates were: Experimentals 90.6% vs. Controls 85.8% (p < .01). In the standard Math exam, the percent passing rates were: Experimental 86.9% vs. 82.2% Controls (p < .01). Zhao Zong-yi concluded that Qigong exercises helped students improve their learning and their intelligence.

Wang Ji-sheng (1989) reported on the effects of Qigong on mental functioning. When Ss are in the Qigong state, their memory, thinking, and perceptual-motor skills are better than usual. He concluded that Qigong did affect intelligence.

Zhu Pei-Li et al., and He Wei-kuo et al. (1985) used Qigong to try to improve retarded children. Teachers and Qigong masters asked the students in their classrooms to do Qigong exercises for 20-30 minutes every day. Students were tested 6 months later and again 12 months later. Results showed that Qigong not only helped students sleep better and increased their resistance to common diseases, but to some degree their language skills and self-control improved. Hence, Qigong can help develop intelligence.

Hu Song-can et al. (1987) in his research showed that Qigong improved the mental functioning of adults and older people.

Song Tian-san (1986) reported that Qigong exercise increased the memory rate by 0.5 to 4 times. Zhang Fan-weng (1988) reported that Ss who had done Qigong daily for 40 days had the ratio of copper and zinc in their hair maintained properly in the range favoring intelligence. Zhao Zong-yi et al. (1988), Han

Tao (1987), and Xie Fang-zhang (1988) reported separately that Qigong in their experiments strengthened mental functions.

In brief, about one dozen research reports have shown that Qigong refreshes the mind, increases attention, and improves memory. All the above experiments showed that Qigong caused improved learning, and that Qigong helped develop intelligence, improved health, and refreshed the mind.

SALT confounds Qigong's principles and methods in learning and instruction. The goal of this thesis is to try to find the common part of the mechanism for the effects of Qigong and SALT on learning. A logical, theoretical analysis will be used instead of an experimental approach.

Philosophical Considerations. In the ancient Chinese world outlook, both the "Taiji" of Confuciansism and the "One" of Taoism mean the starting point of evolution of the universe and life.

Taiji means the essence, some sort of "Qi" which was one integrated mass before the universe was formed. After the Qi of the great void there was Heaven and Earth. After this was "Qi-izing", meaning formed by Qi. Qi was the base of evolution for the whole universe. An individual person has a spot on the body 1.97 inches below the umbilicus as his/her Qi's starting point, the individual Taiji or the so-called "Qi-sea" location, Dantian.

The world view of ancient China considered human beings as part of the universe, common with it and communicating with it. However, the Qi in the small universe of the human body has differentiated, resulting in the human evolution. A human individual is the result of the combining, collecting, selecting and self-constructing of information, and is the integral of both nature and society. Human beings evolved in consciousness. But the original spirit (Yuanshen) was crowded out by the reasoning spirit (Shishen) in the process. Correspondingly, instincts and innate sensibility have decreased. Now, man knows the use of the knowing spirit, but doesn't know the unknowing spirit, its base.

Qigong exercise is a process in which Shishen arouses and fosters the functions of Yuanshen. One returns to the essential ego, regaining an unsophisticated consciousness. Paying all attention to this inner world results in understanding and insight.

Scientific Considerations. In the environment around the human body, special factors such as gravity and electromagnetic fields influence and affect it. Their influence has lessened as the frontal lobe of the brain has come to predominate evolutionarily. People are sensitive to atmospheric electromagnetic waves in the frequency range of 1-100 Herz, with a peak at 8-14 Herz. During Qigong exercises, the brain's alpha waves (8-12 Hz) increase, particularly in the frontal and parietal lobes. Perhaps the Qigong exercises quiet the brain cells and help harmonize the individual soul and universal spirit. Free of external interference, the best condition for learning would be provided.

Conventional psychology suggests (Morgan et al., 1979) that we have conscious and subconscious control systems in the brain. The subconscious level is usually hidden by the dominant conscious level. Experiments show that background information presented while we consciously are focusing on something else can influence our thoughts. When this background or paraconscious information harmonizes with our conscious activity, things go much more smoothly for us than when the background information interferes with conscious activity. Both Qigong and SALT strive to activate the paraconscious positively in order to facilitate learning.

Common mechanisms for learning. Although the type of Qigong exercises vary, three nuclei remain essentially the same. These are breathing, physical and imagery adjustments or regulation.

Breathing adjustment does just that for a particular purpose, including inhaling and exhaling. Breathing then helps imagery adjustment. SALT then take this nucleus of Qigong exercise as a useful way to help learning. Iowa researchers studied several Suggestopedic factors. Coordination of material presentation with breathing increased the rate of learning by 78% (Shen Fan, 1982, p. 22). Here we give an example of applying breath synchronization to presentation of material to be learned.

"Sit down comfortably or lie on a bed. Relax completely each part of your body. Close your eyes. Inhale as deeply as possible. Hold it for 4 counts. Exhale gently as you feel completely relaxed. Hold it for 4 counts. Relax.

Then undertake the following:
Exhale: 1, 2, Inhale: 3, 4.

Hold: 1, 2, 3, 4.
Exhale: 1, 2, Inhale: 3, 4.
Hold: 1, 2, 3, 4. (Repeat pattern.)"

When learning lesson materials this way, one should control the breathing easily. While the material is being presented, s/he should hold for 4 counts and listen carefully. Then s/he should exhale and inhale, and become ready for the next presentation of material. The student synchronizes his/her breathing with what the teacher is saying. The following example is an English lesson for Chinese students to learn English words.

The teacher presents one trio of words at a time: English-Chinese-English in 4 counts. Teacher pauses 4 counts and continues. The students hold their breath 4 counts while the teacher is talking, then exhale 2 counts, inhale 2 counts, and are ready to listen to the teacher talking for the next 4 counts.

Generally there are two stages. First the students follow silently what they listen to as they adjust their breathing per the above. Second the students close their eyes and listen to steady background music while the teacher again reads the material in a 4-4 count. The students simultaneously adjust their breathing to follow the teacher's 4-4 pattern.

Material other than word lists can be learned this way.

The SALT researchers in America using this technique thought that students benefited from the increased oxygen to the brain, and from the synchronizing of physical and mental actions which may have reduced mental noise (Shen Fan, 1982, p 31).

For comparison, here is a description of the Qigong Strengthening Exercise from China Sport (1984): Sit erect with feet flat on the ground, legs shoulder-width apart, knees at a 90 degree angle, palms resting relaxed on the knees, elbows naturally bent, shoulders down, chin slight withdrawn, chest in, eyes and mouth lightly closed, and tongue touching the hard palate. Breathe normally through the nose, regularly, slowly, evenly and quietly. Say "calm" to yourself on inhaling and "relax" on exhaling. Relax a different part of the body with each respiration, first head, then arms, hands, chest, abdomen, back, small of the back, buttocks, legs and feet. Breathing is abdominal, inflating and deflating it naturally. With no pause between inhalation and exhalation, breathing is gradually slowed without forcing to six to eight cycles per minute. Direct your attention to a point five cm. below the navel without straining your mind. Count the number of breathing cycles one to ten and repeat. Begin again if your mind wanders.

Now I would like to discuss further the relationship between breathing adjustment and paraconsciousness. Ancient Qigong masters believed that Zhenqi (an essential qi) is the core of human life. Jing (sperm or egg), Qi (air or energy) and Shen (spirit) are the three treasures of the human body. Jing is the material base of biological movement. Qi is the physical function of material movement. Shen is the concentrated expression of function's movement. People gradually lose their Jing, Qi and Shen in the course of living, so they should "sip" Tien-yang (the positive principle energy from the sun) and "drink" Diyin (the negative principle energy from the earth) to obtain more Zhenqi. With enough Zhenqi, Jing is produced which in turn produces Shen. Without Zhenqi, no Jing, no Zhen and death will come. Zhenqi comes from Tien-yang and grain containing Di-yin; Zhenqi comes from a combination of breathing and nutrition. Zhenqi moves in the human body dependent on breathing (Zhang Zhen Huan, 1988, p 151-2).

Both the respiratory system in Western science, and the Main and Collateral Channels (MCC) in Qigong theory undertake the movement of the body's energy. In 1968 Soviet scientists demonstrated an energy circulation system in the human body corresponding to the MCC. They showed streaming sparking lines of the body's energy in their photographs. They found a protoplasmic energy analogous to Zhenqi which can be strengthened by breathing (Shen Fan, 1982, p 35). Scientists in Japan smeared a liquid polycrystal on a subject's arm, and then made one acupuncture point warm. The affected MCC lines were brightened.

The MCC have their own base and lines which are independent of the nervous and circulation system in the body, as shown by many experiments.

According to Qigong theory, breathing can help move and enliven the MCC, foster and manage the movement of Zhenqi. If Zhenqi is exuberant, the human has exuberant vitality and the whole mental state is in harmony with all nature.

According to yoga, all beings are immersed in prana, this cosmic energy. The energy of every cell, tissue, organ and mindstuff is a manifestation of prana. Through breathing, one's psychological forces can communicate with physiological forces, resulting in unity of motion for the organism, and culminating in reaching cosmic energy. Qigong exercises have the effect of harmonizing the brain's alpha waves (8-12 Hz) with the predominant atmospheric waves. Thus breathing is a bridge between individual and universal energy. Breathing is life, breathing is energy (Mishra, 1987, pp 379-385).

By adjusting breathing externally and mechanically, one can awaken the faculty of understanding and eventually enlightenment of the soul. In Yan Xin's Skill of Developing Intelligence, inhale for 120 counts while imagining a hot beam of light rising from the perineum to the top of the head. A tremendous amount of energy can be moved to the brain, changing Jing into Qi, then into Shen.

Modern physiology concurs that breathing can bring potentiality into actuality. People gasp for breath when in pain, hold their breath when attentive, and so on. The manner of breathing can affect the body's sensitivity to illness, health and general emotion level of gloom or pleasure (Fang Ren, 1982). Breathing is controllable, but not beyond limits. Chu Wei-zhong (1985) experimentally reported that inhaling and then suspending breathing temporarily can increase blood circulation. But exhaling deeply and inhaling deeply reduces the carbon dioxide in the blood, and then blood circulation in the brain, bring a clam sense of control. Thus adjusting one's breathing appropriately can cool one's emotion. Both Qigong and SALT apply breathing adjustment to actualize the mind's potentiality.

Physical adjustment. The famous Qigong master Yan Xin pointed out, "The prerequisite for doing Qigong exercises to consciously relax oneself completely from the hair to toes. Relax, relax and relax again." In doing Qigong exercises, one needs to keep relaxation in mind always. SALT also uses relaxation in the learning process, starting with initial physical relaxation and continuing with a relaxing approach by the teacher and the use of music. Thus relaxed, learners can accept suggestions about increased learning that are compatible with their own views of themselves and their learning barriers.

In communication, the speaker's message has to pass through both his/her own paraconscious barriers and those of the recipient, and also through the communicative medium. Noise can enter this process at several points in several ways. To students, such noise in the learning process can be distraction (mind wandering), restimulation (reintegration), or imprecision in the teacher's communications.

In Qigong, physical adjustment typically is relaxation, stillness and gentleness. In SALT the preliminary relaxing exercises can be categorized as Qigong physical adjustment. In the Qigong quiet state one has a clear mind and is less distractible than ordinarily, and thus the mind can process the teachers' lesson with more than usual mental resources (Wang Ji-sheng, 1989). In SALT worries and distractions diminish, and positive restimulation helps learning.

Qi can be broadcast by the teacher to help the students in the learning process, something not understood by modern science. The author reports the following experiment to test this. The cooperation of a Qigong master, Chen Lin-fen in Peking, was solicited. On April 9, 1989, he sent Qi from Peking over thousands of kilometers to some 40 students in the author's class at 2:30 pm. The author had the students relax and think of the master's name. After several minutes, several students showed evidence of the relaxed

Qigong state; after half an hour most of the students showed the effect in various ways, such as changes in posture or physical activity. This experiment was videotaped and later shown over local TV. In the author's opinion, most of the students did respond in some way to the master's sending of Qi.

Qigong "trains oneself here" to "understand others there." In so doing, Qigong increases perceptibility and intellectual capacity, and one can master the environment more easily than otherwise. In Piaget's terms, Qigong emphasizes more accommodation than assimilation.

As one starts to learn, one usually changes from an active mental state to a passive state. The calm state provides a bridge between the two states. But any state of relaxed awareness is easily broken by the learning task. Once the state is broken, one becomes stressed enough with an optimal level of brain functioning with some 15-25 % increase in beta brain waves (Prichard et al., 1980, p 130).

Yang Gou-shu et al. (1980) experimentally investigated the relationship between anxiety and learning. University students were grouped according to IQ and different instructions were given to halves of students within IQ groups. Half were told, "I expect you to finish this examination; it's easy and simple to finish within the time allotted." Such instruction provided a type of stress; they were poor students if they didn't finish it. The other half were told, "You do not have to finish the examination; there are too many questions, and no one can actually finish it." These students had an excuse for not finishing it quickly, no worrying. Students receiving the latter instruction got higher test scores than those with the former instruction. Students with relaxing, less stressful instruction achieved more than student with stressful instruction. These results are consistent with the stress research of Spielberger (1966) and Schuster & Martin (1980).

Imagery Adjustment. Imagery adjustment or regulation is a means for gradually putting daily thoughts out of the mind and concentrates on a particular location of his/her body, or some outside thing, or some self-created fantasy. Here is a technique from the Tang dynasty, "Gently and slowly close your eyes. Keep your mind on seeing a soft amalgamation of Qi in the air like a beautiful violet cloud over you. Gradually the cloud descends to your head and then covers every pore of your body. It seems as if the sun is shining just after the rain, with a rainbow over the mountain. Through your skin, the beautiful light touches your brain and bones; all your internal organs are being wet as water penetrates the earth. Keep your mind on the energy flowing in your abdomen; don't get distracted." The haziness or ambiguity in such imagery adjustment instructions does not violate the relaxation requirement, but facilitates it.

SALT leads learners to enter a state of relaxed alertness through using imagination and music to dispel ordinary thoughts from the mind. Imagining a beautiful natural scene dynamically gets rid of worry and distraction. For example, learners imagine walking along a beach, hear the waves come crashing in, feel the fresh air and a breeze on the face, a peaceful relaxing scene. Imagination plays an important role in SALT mental relaxation.

The George Concept (Schuster & Gritton, 1986) uses imagination inventively as a way of involving the subconscious mind deliberately rather than haphazardly in learning. Here are the condensed rules for so using the George Concept: 1. Visualize yourself having just accomplished your goal. See yourself there, feel yourself there. Use your imagination freely to make it vivid and realistic. Talk to your subconscious, "George, I want this goal without any doubts or skepticism." 2. State the goal verbally, give yourself reasons why you want the goal, and tell yourself what you can do once you achieve the goal. 3. Work out a schedule of how to get there from the present. Then do it. Applying the George Concept to leaning helps integrate the conscious and subconscious to help learning.

Qigong imagery adjustment affects the whole physical body. In Watson's peripheral theory of thinking, ideation is a function of the whole body. Chaplin notes that there is increasing evidence to show that consciousness, thinking and muscular processes are complementary. Ideational activity often initiates muscular activity, but the relationship is reciprocal. Muscular contractions by stimulating lower brain centers indirectly affect the cortex. The above may shed some light on why imagery adjustment helps learners learn well. The benefit of such mental relaxation is that the mind is free of competitive distraction.

In conclusion, there are three essential nuclei to the many varieties of Qigong exercises: breathing, physical and imagery adjustments or regulation. SALT uses these in an integrated way to accelerate learning by actualizing the learner's potential.

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Qigong y SALT tiene un mecanismo común para activar la potentialidad de humano acelerativo aprender. En particular, las actividades y contenidos de respirar, ajustes físicos y mentales de Qigong tienen paralelos en SALT.

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The Use of Time Line in Teaching

Michael Hager

Abstract. Time. How do we store and use it? Answering this question can be of great assistance in the teaching of a foreign language.

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Through various studies it has been found that almost every one of us stores our time on a continuous line of some sort. This line can take on various forms, but according to Eric Robbie the most common are presented in Fig. 1.

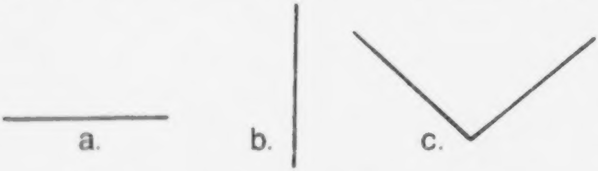

Fig. 1. Types of personal time lines

Those people who select "a" usually have this line located just a little in front of them. In most cases they are dissociated in relation to their time line. With form 'b" the line goes directly through the person and the person is associated. Form "c" can be either associated or disassociated. See Fig. 2.

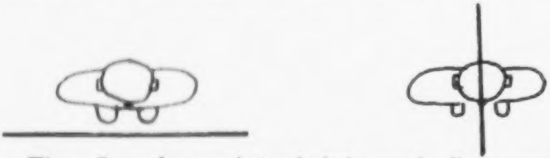

Fig. 2. Associated (a) and disassociated (b) time lines

It has been found that these lines of time can vary from situation to situation. However, in English the normal form is like Fig. 2a for most of the native speakers of English (Andreas et al, 1987.).

The concept of time can be used in the language classroom rather effectively to install in learners what the Andreases consider to be the "average" English time line. To do this I present a normal time line like Fig. 1a and explain it to my students with a metaphor of a history book, where the past is on the left of the time line, the present in the center and the future on the right. See Fig. 3.

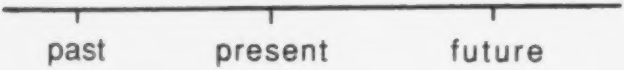

Fig. 3. History book time line

This time line I draw on the blackboard for everyone to observe. Then I include the present perfect tense and explain how this tense starts in the past, goes on to the present, and perhaps into the future. See Fig. 4.

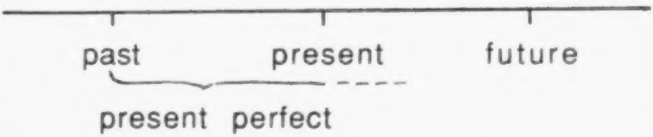

Fig. 4. Present perfect on the time line

Once I have completed this, I have my students relax and just imagine what I say. While doing this, they should notice where they see or feel what I am telling them. First I have them imagine "a man is walking right now", then "a man walked yesterday", followed by "a man is going to walk in the future", and then " a man has walked from the past to the present". Because the present perfect is difficult for Germans learning English, I have them write under their picture for the present perfect "a man has walked from the past to the present". This technique is possible for all difficult new tenses.

After completing this part of the exercise, I talk to my students about where they located their pictures or feelings each time. Most students located the past, present and future times just like the Andreases claim is true for native speakers. However, some say they preferred to use form "b" in Fig. 1. Since I explained to them beforehand how a normal English time line can look, they used the same form as on the board. Then I explain to them that this time line is for their English, and the other form is for their German time line.

In teaching different tenses, I teach this English time line step by step. When beginners learn the Present Progressive, I have them imagine "a man is walking at the moment". Here too I talk to them about where this picture or feeling for the sentence is located. This process can be done each time a new tense is learned. In so doing, I review the tenses already learned on the time line, and present the new one last. Of course, it is important that the students understand the new tense before including it on the time line.

Once my students reach the Present Perfect tense, I explain the concept of the time line, and how it functions to keep "time" sorted out in our minds to avoid confusion.

Through using the time line, my students get a chance to integrate new tenses into their own system of sorting and storing time. The tenses the learner has in the mother tongue that may be used differently in the foreign language can be easily sorted and stored through using the time line in the new language.

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Tiempo. ¿Cómo lo guardamos y usamos? Contestar esta pregunta sea una ayuda en enseñar una lengua extranjera.

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Breaking down the walls of the self-contained basic writing course

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Abstract. The time has come for the basic writing curriculum in the university today to "escape" from the isolation ward and be "mainstreamed" into the academic community. How is this achieved? Through the adoption of an affective, integrative basic writing course model, one which is enjoyable and effective. This unit on the Vietnam War, which serves as a prototypical unit, demonstrates the use of affective methodology (whole-brain, suggestopedic techniques) as the key to cognition and, also, to the integration of "real" academic reading and writing tasks and sources. Through an overview of this unit, practitioners will understand how the use of this model (1) captures the students' attention and makes learning a pleasure as curiosity is piqued and creativity is fostered; (2) creates a non-threatening learning atmosphere; (3) immerses students into high-interest, interdisciplinary sources (including literary

sources), providing both cultural and historical background information and a positive basis for further reading; (4) leads students through synthesizing these outside sources in the creation of a critical written piece, a task frequently required in academic writing; and (5) enables previously "unreachable" students to take part in worthwhile instruction.

Introduction It seems so obvious that many college basic writing instructional models are largely unresponsive to students' real writing need, that of preparation for successful academic writing tasks. Students who have passed basic writing, but who cannot write successfully for other courses will attest to this. Frequently they end up frustrated because, in their basic writing classes, very little time was devoted to academic writing tasks such as writing in response to reading from sources in the various disciplines, or synthesizing from these sources to create a critical written piece. Instead, they have spent untold hours on personal experience essays, on written responses to literary sources (at the exclusion of all others), and on grammar workbooks. The knowledge students glean from involvement in these usual basic writing course tasks seems quite irrelevant in that it does not serve as a sound basis for academic writing. This is a particular shame as, above all other students, these basic writers need a framework upon which to model academic writing tasks. This situation persists despite the fact that respected personages in the field of basic writing, such as Mina Shaughnessy (1977), Mike Rose (1983), and David Bartholomae (1987) have exhorted basic writing instructors to become responsive to the real situation facing basic writing students, the necessity to write for the academic community. To address the issue in the Division of Community Education at Wayne State University, I created an affective, integrative basic writing course model which immerses students into academic writing tasks and sources from various disciplines. I piloted most of the activities in the model on a small group of students (six) who had tested well below college level in writing and had been placed in the Basic Writing Tutorial class. I was well aware of the low confidence levels and the attitude and attendance problems which plague this level of student. Also, I knew of the importance of a sound emotional atmosphere (Krathwohl, Bloom & Bertram, 1956; Wolcott & Buhr, 1987). Therefore, I wove the power of suggestion (using suggestopedic techniques) and positive, affective techniques into the fabric of the course model (A full explanation will follow.) I purposely strove to establish a non-threatening learning atmosphere through encouraging student response without fear of negative repercussions and, also, by playing classical music during class. As we completed the activities in the unit, I realized ways to make the model more complete and have included them here for interested practitioners.

I am delighted to report that all of the students remained in the course throughout the term and attended quite regularly. In addition, all but one of the students progressed to the point where they were both ready for their next writing course and much more confident to write for their academic classes. Since the pilot study, over the past two years I have used the model with groups of ten to fifteen students in our GIS 051 course (remedial writing) with marked success.

The concept of integrating suggestopedic techniques and Pepper's root metaphors into the English course is the "brain child" of Dr. James Quina (1989), an Associate Professor of Education at Wayne State University. A brief explanation (and, therefore, an overly simplistic one) of suggestopedic techniques and, then, Pepper's root metaphors is in order as they are the organizing principles upon which the lesson plans depend. First, according to Schuster and Gritton (1987), "suggestopedia" is a term that means "the application of suggestion to education and learning, especially improving them" (p. 1). Dr. George Lozanov of Bulgaria, the "father" of suggestopedia, has based his methodology on the power of a joy-filled and relaxed learning atmosphere, in combination with the power of suggestion, as the means to reach both the conscious and paraconscious levels of our minds. He developed three phases in the suggestopedic lesson, preliminary, presentation, and practice, which contain specific activities for teaching foreign language. Schuster and Gritton, however, specify that different sequences may be appropriate for other subjects (p.7). Therefore, I have taken the liberty of formulating specific activities for teaching basic writing through suggestion, using preliminary, presentation, practice, and review phases. (These activities follow shortly.)

The root metaphors, ways of organizing and viewing the world in rigorous Western cognition, involve more detailed explanation. The root metaphors are: formism (similarity), mechanism (cause and effect), contextualism (a series of experiential moments), and organicism (integration and harmony). Thus, for instance, if a situation or experience is reflected upon, one could examine it from four different perspectives: Formistically - In what ways is this experience similar to others? How could it be classified or categorized? Mechanistically - What is the cause of the complications in this situation, and what are the effects? Why did this occur? When such and such a theory is applied, what is the result? How much? How often? Contextually - From what various points of view may this situation be viewed, now and as time evolves? How does this issue or situation change or how does conflict provoke change? Organically - How do the pieces or the details fit together to create this experience? What must occur to provide the "whole story"? How do the elements work together? It is easy to see that even a seemingly mundane fact, experience, or situation can become a mystery to be solved. Actually, the most efficient method of explaining this affective, integrative technique is to present a prototypical unit as a model for interested colleagues. To begin, however, I will concentrate on the first two days of the unit in detail because they will reveal how this course model: 1) immerses students into sources from literature and history, providing them with both cultural and historical background information and a positive basis for further reading, 2) captures students' interest and fosters creativity through the incorporation of affective, suggestopedic techniques and 3) enables previously "unreachable" students to participate through the experience of a multisensory delivery system and the incorporation of the root metaphors specified by Stephen Pepper (1970).

Yes, incorporating both the suggestopedic approach and Pepper's root metaphors results in a teaching unit with depth and intrique. Beginning with day one and two, a model basic writing unit, replete with activities, follows:

Vietnam War Unit

DAY 1

Preliminary Phase

(primarily mechanistic: sensory cause and effect)

Albinoni's "Adagio" (slow and heart-rending) is playing as students walk in. The lights are low, and one of the nine slides of actual Vietnam War photos is projected on the screen.

Presentation Phase

(mechanistic: cause and effect)

1. While the music plays and with only brief commentary provided by the instructor, students view nine slides of actual Vietnam War photos which relay the tragic message of the war, and one slide of a modern painting depicting the tragedy and violence. (This last slide remains on the screen throughout the rest of the presentation phase and all of the practice phase.)

2. A student (at random) reads several poems written on-site during the war. Then,

3. The instructor elicits emotions and thoughts from the students while mapping them on the board using "Vietnam War" as key words in the circle. All words are defined in context.

Practice Phase
(mechanistic: cause and effect; organistic: integration and harmony; formistic: similarity; and contextual: a series of experiential moments)

1. Students pair off and choose six to eight words from the map. Each student writes a paragraph expressing his thoughts and feelings about the Vietnam War, drawing upon the chosen words. The music plays as students write. (These paragraphs become the basis for ongoing revisions which incorporate pertinent critical writing skills being stressed in the course at the time.)

2. Students share their written work aloud.

3. Now as the presentation phase is concluded, students request information on the war. The instructor passes out a four-page factual report and refers students to passages that explain several of the situations presented on the slides. Also, difficult vocabulary words are highlighted and defined in context. Students are assigned to study the four-page handout.

DAY 2

Review Phase

(mechanistic: cause and effect; contextual: a series of experiential moments; and formistic: similarity). When students enter the next class (in my case, two days later), "The Green Berets," a patriotic 1960's song, is playing.

1. Students view the slides again from this different perspective. They are free to ask questions as the slides are being viewed.

2. Then a student (at random) reads a brief commentary written by a Marine commander in the war, and students engage in a discussion to understand this second perspective, adhering to the instructor imposed rule that all comments must be made in sympathy with the Marine commander's point of view.

3. Finally, the instructor briefs the students on the dissension felt and manifested at home in the United States during the war's final years.

The Rest of the Unit

The rest of the unit is outlined here. For purposes of brevity, however, I have designated the activities in sequence, without reference to "phases." Please note that in number seven, students synthesize outside sources in the creation of a critical written piece for the first time. Up to that point, they are gathering information.

To complete the unit, students:

1. take a guided "fantasy trip" (eyes closed, concentrating) during which the concept of internal monologue vs. external speech is presented in preparation for reading the short story, "Fear," by Peter Mahoney, which portrays a true-to-life Vietnamese War experience (formistic)

2. learn the critical reading technique of "scientific skimming" so that the importance of gaining control over the text, before actual reading, is stressed

3. share in reading the story aloud; and, finally, write about an incident that frightened them, and then rewrite for the purpose of strengthening specific writing skills currently being emphasized (formistic and contextual)

4. read letters written by Presidents Eisenhower, Kennedy, and Johnson concerning U.S. involvement in Vietnam and report on them (contextual)

5. briefly outline the course of U.S. involvement in the Vietnam War and, then, discuss it, using the four-page handout provided

6. interview Vietnam War vets using group-formulated questions (contextual)

7. create a group-made synthesis chart which explores significant aspects of the Vietnam War in relation to various viewpoints and sources (including the actual, aforementioned interviews); write in response to the chart, forming generalizations and conclusions; and, then, share this information with other students (organistic)

8. create a group-designed booklet, containing poetry and writings on the Vietnam conflict, to be duplicated so that each student retains his own copy (mechanistic and organistic).

Strengths of the Affective, Integrative, Basic Writing Course Model

It is apparent that this prototypical unit is quite comprehensive. I do not wish to convey, however, that other practitioners should adhere to the steps I have elucidated. Rather, using this unit as a framework, instructors will discover the beauty of using this affective, integrative model in formulating their own creations. Here is a tool which stimulates interest and excitement about teaching. The four world views sculpt and develop the lesson planning. Students become actively involved during preliminary, presentation, and practice phases. The possibilities are limitless. Also, because students do not all learn in the same ways, oftentimes they do not learn well in response to "usual" methodology. When instructors diversify by including all four ways of organizing and viewing information during planning and teaching, a broader spectrum of students become involved. Instructors discover that the audio/visual delivery system, coupled with free discussions, group work, lecture, and creative and structured individual writing, guarantees that differing types of learners are reached. For example, those who learn better by involving all of their senses are accommodated.

Appropriately enough, perhaps the key reason for the unit's effectiveness is that it is, overall, organistic; all the "pieces" work together to form the integrated whole of preparing students to successfully negotiate college-level reading and writing. Looking deeper, however, the various strengths of the model are best understood when they are grouped formistically (according to similarities):

First, students experience enjoyable interdisciplinary (historical, cultural, and literary) units in preparation for future coursework in these areas. Vocabulary and language facility are enhanced. Also, students become better critical readers and writers overall, learning how to discern and then synthesize different views from various sources in preparation for assignments which require these competencies. In addition, students are given the opportunity to experience the recursive model of writing (Flower & Hayes,1981), which allows for ongoing reconceptualization in light of new information through the incorporation of reviewing and rewriting as natural processes. In other words, this model provides advance organizers (Ausubel, 1968), "hooks" onto which further knowledge and experience may be "hung."

Secondly, by engaging in the affective and suggestopedic techniques, students develop an intellectual curiosity, a need to know, if you will, which transfers into other learning situations. They begin to share in a practice which "good" language learners utilize: beginning "with a function, a need to get something done, and moving gradually toward acquiring the forms which reveal that function" (Shuy, 106-7).

Finally, this model places students into a workshop classroom, where reading, writing, listening, and speaking are integrated so that each mode of discourse enriches the others (Moffett and Wagner, 1976; Bruffee, 1983; Bickel (1985)

Conclusion

In my experience, it is not often that basic writing instructors are provided the opportunity to raise their teaching to the level of an art. Through using the affective, integrative basic writing course model, I believe that instructors can become creative artists. By way of explanation, I refer first to Jerome Bruner's chapter, "Art as a Mode of Knowing" in his book, *On Knowing: Essays for the Left Hand (1979).* Bruner states that metaphor is the structure by which we effect a "connectedness" or a "unity of experience" in relation to a work of art. "Metaphor joins dissimilar experiences by finding the image or the symbol that unites them at some deeper emotional level of meaning"(p. 63). The metaphor of art, according to Bruner, also involves a canon of economy which results in a "compact image or symbol that, by its genius, travels great distances to connect ostensible disparities" as man is inundated with knowledge and tends "to perceive things schematically, for example, rather than in detail" (p. 65).

In this innovative model, the root metaphors serve as the schema, structure, or metaphor which "connects ostensible disparities," the various units to be created according to the affective, integrative course model. They become the"structures" in Bruner's "structuralism" (1960) which allow teachers to produce continuity of learning, the transferral of knowledge, that which lies at the heart of the educational process according to Bruner (p. 17). Once instructors have begun to master the art of metaphoric planning and instruction, they may draw upon these "structures" as keys to subsequent instructional units. They employ the art of transfer, "the continual broadening and deepening of knowledge in terms of basic and general ideas" (p. 17).

Likewise, the students, who are curious, engaged, and thinking and learning better, become empowered with the tools for effective transferral of knowledge (p. 17). They are prepared to transfer these ways of knowing and learning to future educational situations. Metaphoric teaching and learning, therefore, become nothing less than art.

In his book, *The Basis of Criticism in the Arts*, Stephen Pepper (1965) seconds this opinion as he employs the four root metaphors as the basis for artistic criticism. He believes that the worth of a work of art is measured by the extent to which it is evaluated in terms of all four root metaphors. Thus, when all of the metaphors are incorporated into the basic writing instructional units, the results may be comprehensively evaluated in terms of these metaphors. Instruction becomes an art - an experience of beauty which Pepper defines as, "one vivid in quality, organized, and a source of immediate enjoyment for a normal mind" (pps. 140-141).

Yes, when practitioners actually experience designing and teaching according to the affective, integrative model, they will realize the joy of artistic creation and expression and truly partake in an experience of beauty.

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El tiempo ha venido por el fundamental escribiente plan de estudio en la universidad de hoy a escapar del barrio de aislamiento y ser integrado en la comunidad académica. ¿Cómo se logra esto? Por medio de la adopción de un afectivo, integrado fundamental escribiente modelo de curso, lo que es agradable y eficaz. Esta unidad en la guerra Vietnam, que sirve como una unidad prototípica, demuestra el uso de la metodología afectiva (entero-sesas, técnicas sugestopédicas) como la llave a cognición y, también, a la integral de real lectura académica y fuentes. Por medio de una sobrevista de esta unidad, los practicantes entenderán cómo el uso de este modelo (1) captura la atención de estudiantes, (2) hace el aprender un gusto como curiosidad es provocada y la creatividad es nutrida, (3) sumerge los estudiantes en fuentes de gran interés e interdisciplinarias (incluyendo fuentes literarios) que proveen informaciones ambos culturales e históricos de fondo y una base positiva para más lectura, (4) conduce los estudiantes por los fuentes en la creación de un crítico pedazo que escribir, una tarea frecuentamente requerida en el escribir académico y (5) capacita anterioramente estudiantes no-alcanzados que hacen un papel en instrucción digna.

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An Accelerated Learning Approach to Teaching Critical Analysis

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Abstract The author describes the use of accelerated learning techniques in a graduate literature methods course to teach critical analysis in reading. Four basic metaphors in literature and science, formism, mechanism, contextualism, and organicism, are taught and applied. Students are thus prepared in a usually neglected important skill.

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Popular accounts of Accelerated Learning appear in Peter Kline's *The Everyday Genius* (1988), Colin Rose's *Accelerated Learning* (1985) and Eric P. Jensen's *Super-Teaching* (1988).* The methods developed in these books are based on the research of Georgi Lozanov, documented in his*Suggestology and Outlines of Suggestopedy* (1978); the brain research of Robert Ornstein and Roger Sperry, and more recently, Lynn Nadel; Bandler and Grinder's neurolinguistic programming; and

Howard Gardner's theory of multiple intelligences, elucidated in his *Frames of Mind* (1983). The methods developed out of this body of research make use of a variety of "whole brain processes" to enhance long-term memory, promote discovery, and integrate learning.

Some techniques of Accelerated Learning are the use of multiple sensory processing, the use of fine arts and classical music to increase retention and discovery in any content area, special uses of metaphor, storytelling, rhythmic movement, body sculpture, educational kinesthetics, imaginative drawing, and the singing of songs based on content. On the surface these techniques seem far removed from any rational approach to interpreting literature, and especially removed from approaches designed to teach students how to think in ways represented by literary-critical traditions of the past--the thinking of Aristotle, Coleridge, John Dewey, or I.A. Richards. And yet it is precisely these processes of learning that provide a way for the students to translate their perceptions, feelings and ideas into an articulate interpretation of literature approximating the thinking of great critics.

Teaching Poetry with Music

In 1967 at Sophia University, Bulgaria, Georgi Lozanov first established the effectiveness of using music to increase retention in foreign language instruction, obtaining vocabulary growth rates three to five times greater than those achieved by conventional methods, and three times the retention rate when compared with norms on the Ebbinghaus Curve of Forgetting.

Currently, Accelerated Learning trainers Stephanie Merritt (*Mind, Music and Imagery,* 1990), Ivan Barzakov (founder of Optimalearning) and Peter Kline (*The Everyday Genius*, 1988) all demonstrate the effectiveness of using music in the teaching of a variety of content areas. In my graduate literature methods course at Wayne State University, I use Ted Hughes' "The Thought-Fox" to demonstrate reading poetry with music. This poem is highly functional to the purpose because of its short length, facilitating a complete reading of the poem, and because of its rich imagery, providing strong cross-connections with drawing and visualizing with music.

THE THOUGHT-FOX

I imagine this midnight moment's forest:
Something else is alive
Beside the clock's loneliness
And this blank page where my fingers move.

Through the window I see no star:
Something more near
Though deeper within darkness
Is entering the loneliness:

Cold, delicately as the dark snow,
A fox's nose touches twig, leaf;
Two eyes serve a moment, that now
And again now, and now, and now,

Sets neat prints into the snow,
Between trees, and warily a lame
Shadow lags by stump and in hollow
Of a body that is bold to come

Across clearings, an eye,
A widening deepening greenness,
Brilliantly, concentratedly,
Coming about its own business

Till, with a sudden sharp hot stink of fox
It enters the dark hole of the head.

The window is starless still; the clock
Ticks, the page is printed.

(*Selected Poems.* Thom Gunn & Ted Hughes
1962, Faber and Faber, Ltd.)

I first direct my students to read the poem silently, then I read "The Thought Fox" aloud without using music and the students follow the text silently. The purpose of the first two readings is to decode the semantic sense of the poem. Next, I read the poem with a passage from Debussy's "Prelude to the Afternoon of a Faun." The music is selected because the work of Lozanov shows Debussy's compositions to be highly image-evoking.

The reading of poetry with music is not the same as a reading of poetry with the music as background. As Ivan Barzakov, founder of Optimalearning, has stated it, "the voice surfs on the music." The purpose of using the music is to increase activation of parts of the brain, to activate the limbic system, the reticular formation, as well as left and right hemispheres. The emotions and the imagination are aroused and voice is connected with music as a context for the poem, just as silence is a context for the sense of the poem in the first reading and voice with silence is a context for the sense of the poem in the second reading.

Drawing a Poem

The next step is to pass out art supplies: drawing paper, paint sets, colored pencils or crayons, and invite students to draw their experience of the poem from the three readings: their silent reading, the reading of the poem without music, and the reading of the poem with music.

Drawings can be representational or expressionistic. Debussy's "Prelude to the Afternoon of a Faun" plays in the background as the students draw. Drawing facilitates the processing of imagery both visually and kinesthetically, thereby opening students to further possibilities of interpretation.

Integrating Imaging, Thinking and Feeling

In the next step I use an adaptation of a technique borrowed from Eugene Gendlin's focusing. Gendlin developed focusing as a self-counseling technique used to harmonize imaging, thinking and feeling.

When one feels a disturbance in a relationship, says Gendlin, it is like losing a wallet or key. To find the lost object one can randomly search for it or one can focus on the quality of the feeling one is experiencing. A person gets in touch with the feeling of the loss and allows any images associated with the feeling to become conscious. One then "resonates" with the image-feeling and matching thoughts until an exact match is obtained. The exact match is signaled by a simultaneous intellectual discovery and a felt sense, a bodily release: feeling equals image equals word or phrase.

Focusing can be readily adapted as an Accelerated Learning Technique, a technique that supports self-reflection in interpreting literature or art, guiding students through the sorting of feelings, images and thoughts to find exact matches--matches that make sense intellectually, intuitively, and physically as felt sense. In interpreting literature, do we not naturally "resonate" to these modes of knowing and experiencing? In an accelerated learning approach to teaching poetic analysis, this process is made more explicit. Students are verbally guided through a focusing process. A possible script adapted from Gendlin's *Focusing* follows:

Focusing Script

Choose an aspect of the poem or an aspect of your drawing to focus upon. Notice any feelings you are having as you focus on that aspect of the poem or drawing. Notice any sensation or emotions you are feeling.

Now--what is the quality of that feeling? What word, phrase or image comes to mind?

Go back and forth between word (or image) and the feeling. What word or phrase best fits? When word or image matches with feeling, have the sensation of matching them several times. If the feeling changes, follow it. What is the quality of the feeling now? And now?

When you get a perfect match, the words being just right for the images and feelings, begin to write down the words and phrases that have come to mind.

Continue to write about your experience of the poem or your drawing of it. Write from a fourth to a half a page.

Writing with Key Words

The focusing process is transitional--a key to building a bridge between feelings, images and verbal expression. As the students complete a fourth of a page, a list of key words is passed out and students are invited to look on the list to see if they have used any of the key words or phrases or any similar words or phrases. They are then invited to use the words or phrases on the list to complete their analysis.

The key words are a random mixture of terms and phrases taken from four critical traditions in literary history, the critical thought of Aristotle (formism), Coleridge (organicism), John Dewey (contextualism), and I.A. Richards (mechanism). (See "Key Words for Interpretation.")

After the students have completed their interpretation of the poem, they will then discover the critical positions they have adopted in their interpretation. The chart, "Root Metaphor in Literature and Science," is passed out and the students locate their interpretation on the chart.

KEY WORDS FOR INTEREPRETATION

In developing an interpretation, please circle any of the following words that you find useful. You may find these words or phrases useful as suggestive of another term or idea that you will use in your interpretation, or you may use the term or phrase directly-as part of the language of your interpretation.

definition
relationship
growth
goal
flux
measurement
quantity
location
norms
unity
part/whole
association
comparison
design
complete
organization
event
situation
intensity
conformity
group
suitable
mold
typical
variety

quality
purpose
form
integration
ideal
change
connection
strands
texture
standards
normal
conflict
space/time
act
pattern
repetition
category
harmony
genre
class
appropriate
description
determined
order
discovery

cause/effect
characteristics
stimulus/response
plan
classification
cumulative knowledge
point of view
fragments
physical laws
sensations/emotions
multiple realities
organism
appearance/reality
pleasure/pain
presence(now)
frequency
duration
universal
character
law
rubric
fitting
cast
archetypal
quintessential

nature
diversity
clash
mutate
diverge
encounter
oneness
individuality
uniqueness
congruity
bring off
outcome
impetus
enact
prototypical
variegate
transform
discord
refashion
probe
examination
web-like
bridge
product
consequence
result
produce
render
tapestry
machine-like
reconciliation
modify
renew
bond
link
nexus
solidarity
interrelationship
carry out
make
impulse

In answer to the question, What key words did you use? their interpretation of the poem will be dominantly formistic (Aristotle), organistic (Coleridge), contextualistic (Dewey) or mechanistic (I.A. Richards). For some students their word choices may be eclectic, balanced between two or more or the critical theories. And for some, it is possible they do not connect with the modes of criticism that are presented. Perhaps they have invented a new language, a new criticism. Nevertheless, all the students at this stage are given the opportunity to discover the language they have used and to reflect on how they arrived at that language. The language of each world view is represented in the chart. See Fig. 1.

Briefly, the formist position, represented by Aristotle, sees the world as a system of **similars** and **dissimilars**. Out of this vision of the world the concepts of **comparison**, **classification**, **pattern**, **form**, **standard**, **ideal type**, and **characteristic** emerge as constructs for organizing the world, including the world of literary form, the **nature of character**, **style**, and **genre**.

To the formist "The Thought Fox" is an effective poem because of its conformity to norms of prosody (consonance and assonance, for example), its use of patterns of similarity, evident in rhyme structure, and its developed parallel between the image of a fox emerging from the forest and the creative process emerging from mind and thought.

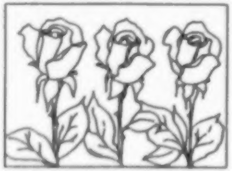
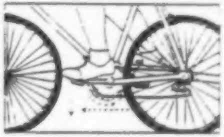
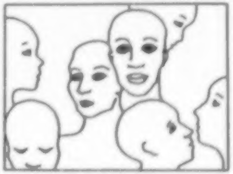
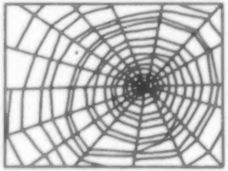
The organicist, represented by Coleridge, sees reality as relationship of parts to whole, an integration of fragments. In literary criticism, one looks for **unity**, for **reconciliation of opposites**, for **appropriateness** of part to whole, the **fitting** of ideas, images and feelings. Each part of a poem **supports** every other part.

As one of my graduate students (Petrovich, 1981) pointed out, every stage of "The Thought Fox" interrelates imagery conveying the development of the creative process: the mystery (stanzas 1-2), the approach (stanzas 3-4), and the rush (stanzas 5-6).

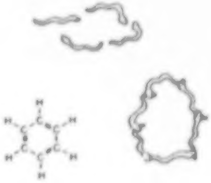
The contextualist, represented by the thinking of John Dewey, sees reality as a process. This view of reality emphasizes change, and the experience of the moment. Out of this view of reality emerge the concepts of **point of view, quality**, **act**, **event**, and **conflict**. Literature can be **rich** in **strands of experience**, conveying **purposeful action**, **multiple realities**, and **serial**, **funded experience**. As Dewey says, a work of literature becomes a different reality with each successive reading. To test this hypothesis, students are encouraged to re-read "The Thought Fox" several times and to document changes in their experience of the poem.

Fig. 1

Root Metaphor in Literature and Science †

	Formism	Mechanism	Contextualism	Organicism
Root metaphor	Similarity	Machine	Changing historical event/ experiential moment	Integration (harmonious unity)
Images				
Theories of truth	Correspondence (absolute)	Causal adjustment (relativistic)	Instrumental/pragmatic (relativistic)	Coherence (absolute)
Key words	definition characteristics form plan classification ideal form participation norms standards normal comparison design pattern	cause effect stimulus response measurement quantity location physical laws sensations association space-time	quality purpose goal flux change point of view strands texture multiple realities conflict arbitrary presence (now) act event	relationship growth integration ideal cumulative truth nexus fragments unity wholistic organism appearance/reality complete

Root Metaphor in Literature and Science (*Continued*)

	Formism	Mechanism	Contextualism	Organicism
Literary manifestation	standards/norms genre character types literary period styles of writing	determinism in character motivation emotive and sensory response (cause and effect) in literary criticism	funded experience points of view conflict aesthetic quality purposive action	"reconciliation of opposite and discordant qualities" every image and concept supports every other image and concept
Standard of literary judgment	Conformity to a standard or norm (e.g., conformity to the requirements of an Elizabethan sonnet)	productive of the pleasures of sensory and emotive response; the pleasures of association	Rich in strands of experience; intense experience of quality	Appropriateness; fitting all parts to create a unified whole; organic unity
Scientific metaphors as root metaphors	Galen: "A physician needs to study anatomy as an architect needs to follow a plan." Newton: Noting the similarity between the falling of an apple and the orbiting of the moon suggested law of gravitation.	Archimedes: "Give me a place to stand and I will move the earth." Boyle: The rise of mercury in a column is caused by "the spring in the air."	Leonardo da Vinci: "Those sciences are vain . . . which are not born of experience." Thomas Edison: "There's a better way to do it . . . find it." Benjamin Thompson: Invention seems to be peculiarly the province of the many sciences . . . discovery his harvest; utility his reward.	Kekule: 

† Excerpted from Chapter 12 of Effective Secondary Teaching: Going Beyond the Bell Curve by James Quina. New York: Harper & Row, 1989. By permission of Harper & Row.

The mechanist, represented in literary criticism by I.A. Richards, sees reality as a machine. Cause and effect, stimulus and response are its basic concepts. In literature it is translated as **determinism** in character development, **emotive** and **sensory response**, the **pleasures of association**. Students record their **sensory**, **emotive** and **associative** responses to "The Thought Fox" and then hypothesize **cause** and **effect** relationships between **elements** of the poem and their **pleasurable** or **displeasurable** responses. If the poem rates high on pleasurable response, it is considered effective. Mechanism is relativistic, but it is not limited to subjective judgment; students develop the discipline of making their responses public by identifying the images, lines, and words, which caused their pleasure or displeasure.

A Metacognitive Approach to Literary Criticism

Dominant critical positions are identified by hand count and students are directed to find a partner holding a view other than their own. They are asked to explain to the other student the stages by which they came to hold their view. What was the genesis of the language they used? Here the student must make a metacognitive search starting from an initial silent reading on through the reading with music, the drawing, the focusing pro-cess, initial expression in verbal form, and selection of key words to match their language.

A final stage is a whole class discussion of interpreting "The Thought Fox" and a sharing of various perspectives. At this point the teacher can assist the students in more clearly articulating whatever critical position they have adopted, guiding them in developing counter-arguments to their positions, and exploring the class's experience of translating feeling and image into verbal form. Each stage of the teaching-learning sequence can be reflectively explored to discover what worked for the students and to refine the process.

A continuum will have been constructed--a continuum moving from an exploration of feeling and perception to an exploration of critical modes of thought. The students now have entrance into four distinct traditions of critical thought. The critical traditions of Aristotle, Coleridge, Dewey and Richards can now be explored philosophically, historically and culturally. The mastery and application of these critical concepts becomes progressively easier for these students, for they have already been at the center of these modes of thought. They have created such thoughts and they have discovered how they have created these thoughts.

* End Note: *SuperLearning* published in 1979 by the journalists Sheila Ostrander and Lynn Schroeder, describes a system of accelerated learning that is markedly different from those cited above. The complex system of breathing and timing recommended in *SuperLearning* is not representative of Lozanov's research and is not essential to achieving extraordinary results.

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El autor describe el uso de aceleradas técnicas de aprender en un curso graduado de métodos de literatura para enseñar análisis crítico en lectura. Cuatro metaforas fundamentales en literatura y ciencia, formismo, mecanismo, conextualismo, y organicismo, se enseñan y aplican. Estudiantes son así pre-

parados en una usualmente descuidada destreza importante.

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8 Stories and Tests

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Abstract. The 8 stories package was developed to provide cognitive criterion tests intermediate between global and micro criteria to use in learning or SALT research. For each story, test items were developed and refined with item analyses for each of Bloom's 6 cognitive levels plus 1 level of perceptual memory. Reliabilities ranged from 0.59 to 0.79 (median 0.73) for the multiple choice tests and 0.93 for the vocabulary recall test. Factor analysis with 6 factors provided limited support for Bloom's Taxonomy using a triangularity criterion. User recommendations are made.

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The purpose of this document is to (1) provide the background and characteristics of the 8 stories themselves, (2) to present reliability and factorial validity test data, and (3) to make user recommendations. Norms are not yet available since revisions were made.

Story development

About 1980 the author became aware of the need for intermediate criteria to use in SALT research. Most SALT studies used either global criteria (e.g., grades) or micro criteria (e.g., vocabulary learning tests). The 8 stories project grew from a desire to produce intermediate criteria for use in studying learning and reading research. The 8 stories were written and developed as a vehicle to measure cognitive functioning according to Bloom's taxonomy of cognition (Bloom et al., 1966). Bloom's 6 levels in order of progressively higher functioning are: knowledge, comprehension, application, analysis, synthesis and evaluation. Pring (1971) reviewed the literature on Bloom's taxonomy.

The stories were written about 1983 by Margaret Dobson under contract to the author, and with certain desired characteristics. Each story was to be about the same length, be of the same general interest, and to embed 25 rare English words to be learned in context.

The resulting stories have a science fiction flavor with roughly the same reader goodness or interest ratings, and range in length from 1700 to 2300 words. Half of the stories (coded 41-44) have hard vocabulary words embedded, while the others (coded 51-54) have easy vocabulary words embedded. Ease of learning definitions had been determined beforehand in preliminary item analyses, so that an easy list or set on the average will have 2 more words right than a hard list. Averages for college students range typically from 8-12 for the hard lists and 10-14 for the east lists.

Descriptive characteristics about the stories are given in Table 1. Goodness interest ratings (Boring = 1 through Fascinating = 9) were obtained for undergraduate students (n = 6). A computer program Right Writer analyzed each story to get Readability, Strength (forcefulness) and Descriptive (% adjectives & adverbs) indices.

Table 1. Characteristics of the 8 stories

Title	Goodness	Readability	Strength	Descriptive
Facient of Love	6.5	7.93	0.57	0.39
Odysseus	6.2	6.31	0.69	0.36
Perspectives	5.0	8.14	0.66	0.46
Odysseus-2	5.8	6.97	0.72	0.39
Centaur	6.7	6.30	0.69	0.35
Cockfight	6.8	5.59	0.75	0.35
Keryl	7.7	7.42	0.68	0.36
Shared Soul	7.8	5.70	0.78	0.33

Test Development

COGNITION. Following Bloom's Taxonomy, originally items were written to measure his 6 levels of cognition as follows.

Knowledge, the lowest level, was measured by writing items asking people to recall and write down the precise definition to rare words learned in reading a story. Each target word was defined in parentheses in its first use in a story, but not thereafter. Ability to learn word definitions is generally accepted as a measure of verbal knowledge.

These words were unknown by the author originally, and most college students don't know them either. It's only an occasional student that will know 1 or 2 words in a list. As a result, the vocabulary tests measure ability to learn word definitions in context, and not the size of an existing vocabulary.

The word lists across stories are comparable in structure: each list in a story has 2 words each beginning with b, c, d, f, g, k, l, m, p, r, s, t, and 1 with w. Most of the words are nouns, with an occasional verb or adjective.

Reader ratings of pleasantness and alertness are solicited at the beginning of each vocabulary test. These ratings provide useful affective criteria to compare with the cognitive test scores. The ratings use a 1-9 Likert format with verbal anchors at the extremes, and "5" indicating an intermediate rating.

Comprehension items (4 per story) were written in multiple choice format to measure the reader's understanding of a story. A typical item is:

When a beggar justifies his begging by claiming the world owes him a living, he is

a. behaving psychotically. b. hallucinating. c. reacting babyishly. d. rationalizing.

Application items (4 per story) were written in multiple choice format to measure the reader's ability to apply information. A typical item is:

Mrs. Smith has frequent headaches and her doctor can find nothing physically wrong with her. Her headaches are probably due to

a. personal maladjustment.
b. inherited mental weakness.
c. undiscovered germs.
d. incipient insanity.

Analysis items (4 per story) were written in multiple choice format to measure the reader's ability to think critically about information read, and to draw appropriate conclusions. A typical item is:

In discussing the merits of a grading system (A-B-C-D-F) versus pass/fail (Satisfactory/Unsatisfactory), one student said, "Students go to college to learn, not just to get grades. Grades are determined by chance or guessing. The student knows how he/she is doing in a given course, and so is a better judge of his/her performance than the teacher. So a Satisfactory-Unsatisfactory system is preferable since it reduces differences between grades and gives a better picture of how a student is doing." This conclusion basically depends on the idea that

a. The student is the best judge of how he/she is doing.
b. Grades are poor indications of what students learned.
c. One grading system is better than another.
d. Multiple choice test are used in grading.

Synthesis items (4 per story) were written in multiple choice format to measure the reader's ability to synthesize the information read. A typical item is:

People were asked to give their sensations of comfort in a room where the air and wall temperatures (degrees F.) could be controlled independently. The data are:

No.	Wall	Air	Sensation
1.	85	85	Uncomfortably hot
2.	85	50	Uncomfortably hot
3.	70	85	Comfortable
4.	70	70	Comfortable
5.	70	50	Comfortable
6.	50	50	Very cold
7.	50	70	Uncomfortably cold
8.	50	85	Cold

The best explanation for these reported sensations is that comfort, or discomfort, depends on:

a. wall temperature only.
b. air temperature only.
c. both temperatures.
d. need more information.

Evaluation items (4 per story) were written to measure the reader's ability to evaluate information critically in a more global sense than for analysis items. A typical item is:

Many people believe that our states should have more uniform traffic laws. However, there may be dangers in doing so. Which of the following would avoid the greatest danger?

a. A US constitutional amendment provides the basis for all traffic laws.
b. A US presidential commission works out standards for traffic laws and encourages all states to consider them in state laws.
c. A conference of state governors agrees on a traffic law code and each governor tries to get it passed into law.
d. The US Supreme Court establishes a uniform traffic law code and rules against all non-conforming states.

PERCEPTION. Recently emphasis has focused on Guilford's (1967) Structure of Intellect (SI) model, with 3 facets of information processing: input, processing and output. Accordingly, 10 items were developed for information input or perceptual memory for each story. The reader is asked, "Which word of the 4 presented did you see in the story you just read?"

The philosophy used in developing these items follows. The computer program Right Writer was used to produce the frequency distribution of all words appearing in each story 1 or more times. Common words, not rare English words to learn for the vocabulary test, were used for the perceptual test. Two words were selected that appeared just once, 2 more that appeared twice, 2 more with frequency 3, 2 more with frequency 4, and finally 2 with frequency of 5 or 6. Also an attempt was made to pick words not directly related to the plot of the story, so that the reader had to have read all words and then remember having seen them in the story. Distractors were selected that did not appear in the story, had the same initial letter, but plausibly might have appeared in the story.

No data have been collected on these SI input or perceptual memory items; they are for research only. Accordingly, information such as norms and validity is not available.

Test results

Two complementary techniques were used to analyze the data: Item analysis was used to assess the existing scales, and factor analysis to determine empirical structure. A complete report is given in Kottke and Schuster (1990).

Item analysis was used to evaluate the cognitive items and as a basis for revision of items. Two preliminary item analyses were used to refine and rewrite items with data from 50-100 undergraduate students. Then data were obtained from 487 psychology undergraduate students at a mid-western university who read all 8 stories in random order and answered all test items. Students were instructed to learn the rare words underlined in context as they read each story, as well as understand the story. The 4 item scores per story were summed across all 8 stories to provide these higher Bloom scales: comprehension, application, analysis, synthesis and evaluation. Bloom's knowledge score was computed as the number of rare words defined correctly (0-25 range per story), and summed over all 8 stories. Sample N's vary somewhat due to some incomplete data per test.

Data on means, standard deviations and alphas are presented in Table 2. Although satisfactory for research purposes, these alphas indicate a need for continued work in developing items to measure Bloom's cognitive domain. Poor items have been revised, and new ones written particularly for Analysis and Synthesis. New norms are not yet available.

Table 2. Means, standard deviations, items/scale and coefficient alphas

Test	Mean	S.D.	Items	Alpha
Knowledge	69.66	34.86	200	0.93
Comprehen.	23.63	4.62	31	0.79
Application	18.36	4.33	27	0.74
Analysis	15.28	3.44	23	0.67
Synthesis	14.53	3.46	25	0.59
Evaluation	18.74	4.17	27	0.73

All 165 multiple choice items and the 8 vocabulary scores were submitted to principal axes factor analysis with varimax rotation using the SPSSX package. No clear factor structure emerged. The first 6 factors accounted only for 15% of the variance, and the first 33 factors for 51% of the total variance. These item factors reflected content unique to one story generally. These results do not appear to support Bloom's categories.

Factor analysis was also done with the 12 half-length scales of like domain items or vocabulary scores. The sum of the odd-numbered items per Bloom level constituted the Odd score, and the Even score was computed similarly for the even multiple choice items or vocabulary scores. These Odd and Even scores defined that cognitive level and were expected to correlate highly with each other.

A 6 factor solution was forced, and produced just one clear factor, Knowledge, accounting for 45% of the common variance. All 6 factors accounted for 63% of the variance. The remaining factors were conceptually indistinct; see Table 3.

Some support for Bloom's hierarchical structure is seen in Table 3. The Comprehension tests have loadings on the Comprehension factor, with rather marginal loadings on the Application factor. In addition, the higher level tests of Application, Analysis, Synthesis and Evaluation have appreciable loadings on the lower level Comprehension factor. Also, the Synthesis subtests had appreciable loadings on the Application factor. However, there are holes of trivial or zero loadings in the remainder of this desirable loadings triangle. Note that the Vocabulary tests were recall, while the higher level tests were multiple choice. Thus the lack of similar factor loadings of the higher level tests on the Knowledge factor may reflect this difference in method.

As the 6 factor solution resulted in just 2 factors with eigenvalues over the customary limit of 1.0, a 2 factor solution was run next; see Table 4. Eigenvalues were 5.8 and 1.7, and the factors accounted for 49 and 14% of the total variance.

Table 3. Rotated factor loadings and test communalities by half-length Odd (O)-Even (E) subtest in the 6 factor solution

		Tentative Factors						
Test		Know.	Comp.	Appl.	Anal.	Syn.	Eval.	Com.
Vocabulary	O	94						92
	E	95						92
Comprehen.	O		81	22				75
	E		72	33	29			74
Application	O		48	59				69
	E		72	28				69
Analysis	O		70		34			72
	E		30		87			94
Synthesis	O		34	80		13		85
	E		28	18		91		98
Evaluation	O		35				82	93
	E		63				28	71

Table 4. Rotated factor loadings and test communalities for half-length Odd-Even scales in the 2 factor solution*

Test		Knowledge	Factor 2	Commun.
Vocabulary	O	95	13	91
	E	95	08	91
Comprehen.	O	00	78	61
	E	00	82	68
Application	O	11	76	59
	E	08	79	63
Analysis	O	15	78	63
	E	15	66	46
Synthesis	O	09	74	56
	E	01	64	40
Evaluation	O	12	74	56
	E	06	78	61

*Decimal points omitted for convenience.

* * *   * * *   * * *

Future research could work on improving the triangularity of subtest loadings on factors as illustrated in Table 3 above. A dual criterion could be used to select and revise items for a given Bloom cognitive level. Here we used only an item-total correlation in screening items to insure that each item did provide some contribution to the total score for that subtest. This should be augmented by a logical cognitive level analysis per item as follows. Two or more experts who are thoroughly familiar with each story, its questions, and Bloom's levels, rank each item as to which 2 levels it best measures. An item is retained for a subtest when the experts agree. When they disagree, a third expert resolves the problem, or revises the item, or discards it. This procedure should refine items and define level tests with both precise logic and empiricism. Hopefully this would lead to a more nearly filled-in triangular matrix of factor loadings, and thus further support for Bloom's Taxonomy.

User Recommendations

These 8 stories and tests are now suitable for accelerated learning and teaching research. We present here 3 different ways of using the 8 stories and tests in the classroom and research. These ways differ in how the Bloom level scores are summed for subtotals and how many stories - tests are administered. These ways are presented in order of most conservative to least conservative, as justified by the present research. Note that the perceptual memory items are not part of Bloom's taxonomy.

1. Two scores, Vocabulary and Higher level. At least 2 stories with tests, preferably one hard and another easy vocabulary, are given per class or experimental condition to achieve adequate reliability. The 2 vocabulary scores are summed for the Knowledge score. The 20 multiple choice items per story-test are summed first and then added across the 2 story-tests.

2. Three scores, Vocabulary, Comprehension-Application-Analysis, and Synthesis-Evaluation. At least 4 stories with tests, preferably 2 hard and 2 easy vocabulary, are given per class or experimental condition to achieve adequate reliability The 4 vocabulary scores when summed across tests yield the Knowledge score, and the 4 sets of multiple choice items yield 2 factor scores of Comprehension-Application-Analysis and Synthesis-Evaluation appropriately.

3. Six scores, all Bloom levels separately. All 8 stories with tests, preferably in random order, are given per class or experimental

condition to achieve adequate reliability. The 4 item scores and vocabulary scores are summed over levels and across tests as described earlier.

The user may wish to consider this test information speculatively in the Structure of Intellect (SI) Model following Guilford (1967). It was for this reason that the perception items (SI input) were developed. Recommendation #2 above may fit with this model, with Comprehension-Application-Analysis being putatively the SI processing and Synthesis-Evaluation the SI output.

Users are invited to submit their test data to provide norms and further validity studies.

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El paquete de 8 cuentos fue desarrollado para proveer cognitivas pruebas de criterio intermedio entre globales y micro-criterios que usar en investigación de aprender o SALT. Por cada cuento, artículos de prueba fueron desarrollado y refinados con análises de artículo para cada uno de los 6 niveles cognoscativos de Bloom más 1 nivel de memoria perceptiva. Veracidades recorrieron de 0.59 a 0.79 (mediano 0.73) para las pruebas de escogimientos múltiples y 0.93 para la prueba de recordar vocabulario. Análisis de factor con 6 factores proveyeron limitado apoyo para la taxonomía de Bloom al usar un criterio de triangularidad. Recomendaciones de usario se hacen.

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For further information such as ordering the 8 stories and tests, write the author: Don Schuster, Rt#4, Ames, IA 50010.

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A Positive Look at Suggestive Accelerative Learning and Teaching Techniques in the National Research Council's *Enhancing Human Performance: Issues, Theories, and Techniques*

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Abstract The author has extracted many positive comments and statements about SALT from the National Research Council's monograph: *Enhancing Human Performance*. This information can be quite useful in planning research and preparing research proposals.

* * *   * * *   * * *

The National Research Council is one of the most prestigious scholarly organizations in the United States, having been formed by the National Academy of Sciences for the purpose of advising the United States government on science issues. The National Research Council's Committee on Techniques for the Enhancement of Human Performance, formed by the Commission on Behavioral and Social Sciences and Education, recently published a review of accelerative learning procedures in a report formulated for the United States Army in the book *Enhancing Human Performance*, edited by Daniel Druckman and John A. Swets (1988). Imbedded in this report are many positive statements regarding Suggestive Accelerated Learning and Teaching Techniques (SALTT) which may be of use to teachers and trainers for brochures, publicity, articles, grant proposals, verbal introductions to courses, etc.

The portions of text regarding accelerative learning are scattered throughout the book, and the purpose of this article is to extract these statements and to list these statements for use by SALT practitioners. The quotes cited are consistent with the philosophy of the science of suggestion in the classroom in that the statements given here are positive in tone and implication.

The purpose in extracting these portions for the reader is to create a list of quotes available for whatever uses SALT practitioners can make of them. Most of these quotes stand alone and are not necessarily intended to flow in an order with a conclusive message.

The review team used a library document review process in coming to conclusions regarding SALTT procedures, one site visit was made to the 1986 SALT Conference in Palm Beach.

A historical overview of the review in the preface states that the Army Research Institute in 1984 asked the National Academy of Sciences to form a committee to examine the potential value of certain techniques that had been proposed to enhance human performance. As a class, these techniques were viewed as extraordinary (p. vii).

These techniques are thought possibly to provide such unusual benefits as accelerated learning,..(p. viii).

The technologies singled out in the report are those that can improve creativity and innovation, learning and training, motivation and cohesion, leadership and management, individual, crew, and unit fitness, soldier- machine interface, and the general productivity of the Army's resources. (p. 5).

Examples of techniques include Suggestive Accelerative Learning and Teaching

Techniques, a package of methods geared primarily toward classroom learning. (p. 5f).

Suggestive Accelerative Learning and Teaching Techniques (SALTT) is an approach to training that employs a combination of physical relaxation, mental concentration, guided imagery, suggestive principles, and baroque music with the intent of improving classroom performance. Some applications have included language training, typing instruction, and high school science courses. Attempts have been made to evaluate the applications, and many of these evaluations are published in the Journal of the Society for Accelerative Learning and Teaching (Psychology Department, Iowa State University). The following is a sampling of claims made in brochures and convention announcements: 'A proven method which has broad potential application in U.S. Army training'; 'It will significantly reduce training time, improve memory of material learned and introduce behavioral changes that positively affect soldier performance--self-esteem, self-confidence, and mental discipline-'; and 'Most students will prove to themselves that they have learned a far greater amount of material per unit of time with a greater amount of pleasure than they have ever previously done. (undocumented, p. 6).

In introducing "FINDINGS AND CONCLUSIONS," the committee describes their explorations. ...We learned about the possibilities of priming future learning by presenting material during certain stages of sleep, of improving learning by integrating certain instructional elements, of improving skilled performance through certain combinations of mental and physical practice, of reducing stress by providing information that increases the sense of control, of exerting influence by employing certain communication strategies, and of maximizing group performance by taking advantage of organizational cultures to transmit values. (p. 16).

Under "GENERAL CONCLUSIONS," urgent recommendations are given. The Committee suggests that the Army move vigorously, yet carefully and systematically, to implement techniques that can be shown to enhance performance in military settings. Such an effort would be timely because of recent developments in the relevant research areas. Moreover, the payoff is likely to be very high if techniques are selected judiciously... The Army's concern for enhancing human performance and its substantial resources for evaluating techniques place it in a favorable position to take advantage of developments. (p. 16) .

"ACCELERATED LEARNING" is included in a section on "SPECIFIC FINDINGS AND CONCLUSIONS:"

1. Many studies have found that effective instruction is the result of such factors as the quality of instruction, practice or study time, motivation of the learner, and the matching of the training regimen to the job demands. Programs that integrate all these factors would be desirable. We recommend that the Army examine the costs, effectiveness, and longevity of training benefits to be derived from such programs and compare them with established Army procedures." (p. 19).

2. The committee finds...that these programs...such as Suggestive Accelerative Learning and Teaching Techniques, integrate well-known instructional, motivational, and practice elements in a manner that is generally not present in most scientific studies." (p. 19) .

3. We find that scientifically supported procedures for enhancing skills are not being sufficiently used in training programs and make two recommendations to remedy this problem. First, the basic research liter-

ature should be monitored to identify procedures verified by laboratory tests to increase instructional effectiveness. Second, additional basic research should be supported to expand the understanding of skill acquisition for both noncombat and combat activities." (p. 19f).

4. We conclude that the Army training system provides a unique opportunity for cohort testing of training regimens. The Army is in a position to create laboratory classroom environments in which competing training procedures can be scientifically evaluated." (p.20).

5. The committee recommends that the Army investigate expert teacher programs by identifying and evaluating particularly effective programs within the Army. In addition, transferable elements of effective instruction can be reported to the larger instructional community. (p.20).

Under the topical heading "LEARNING," the committee justifies the choices of procedures examined. In the area of learning, the committee chose learning during sleep and accelerated learning techniques as topics for consideration. The choice of these particular topics relates to the Army's desire to reduce training time. (p. 39).

An "ACCELERATED LEARNING" review of research states:

> With respect to the goal of accelerating the learning process, that is increasing the rate or depth, or both, of learning beyond that characteristic of typical training in a given task, three types of research are relevant. First, basic research on human beings as learners is crucial: knowing the basic characteristics of human attention, of the storage and retrieval processes that underlie human memory, and of the representation of the knowledge and procedural skills in long-term memory provides a framework for examining practical techniques that are...likely to accelerate learning. (p.48).

The other two areas of research are related to each other: research on the characteristics of effective instruction, and research on effective (p. 48) learning strategies on the part of the learner. The first of these more applied research domains focuses on the skills, techniques, and knowledge the instructor can bring to the training situation; the second focuses on the strategies the learner can bring to the training situation to accelerate the learning process. The fact that efficient learning strategies may be transmitted from the instructor to the learner is only one of the ways in which these two research domains are related. (p. 49).

We focus...on accelerated learning programs that attempt to provide a system for addressing instructor and student variables together...., [and to] "look at teacher-learner dynamics as a whole. (p. 49).

"PACKAGED PROGRAMS FOR ACCELERATED LEARNING" are described:

"Accelerated learning methods are a class of techniques using unusual methods of instruction with the intent of substantially increasing the speed of learning. The techniques are referred to by the names of Suggestive Accelerative Learning and Teaching Techniques (SALTT), Suggestopedia, and Superlearning. The approach employs a combination of physical relaxation exercises, guided imagery, a suggestion of efficient learning, a belief in tapping mental reserves, and an alternation of active and passive review (generally with baroque music). (p. 49).

Examples of improvement in learning were given as follows: 10 percent improvement in learning German (Gassner-Roberts and

Brislan, 1984); 25 percent improvement in learning English as a second language (Zeiss, 1984). A number of quasi-experiments report that students can learn comparable information in one-third the time (see Schuster and Gritton, 1986). (p.50).

SALTT procedures exploit a number of traditional (e.g., spacing repetitions) and nontraditional (e.g., review with music) procedures in a conglomeration of techniques to improve learning. SALTT provides a packaged program with specific techniques to deal with student motivation, instructor motivation, instructor training, and presentation of material. By dealing with the multiple aspects of instruction, SALTT techniques may enhance the instructor's ability to keep students motivated to perform, to remain engaged in the task, and to provide material at an (pp.50) appropriate level. (p. 51).

SALTT seeks to change instructors' attitudes, expectations, and behaviors to produce better instruction... In general,... techniques employed by SALTT instructors may motivate ...practicing instructors to alter their teaching behavior for the better. (p.51).

"THE SALTT CLASSROOM" is described:

"A SALTT classroom includes features that are not present in the traditional classroom. The environment is a pleasant living room-lounge atmosphere with comfortable chairs rather than rows of desks. This setting is intended to provide a relaxed, comfortable, and nonthreatening learning environment. The instructor encourages the interaction of the entire class through the use of positive reinforcement, relaxation, and confidence-building techniques. (p,.51).

Schuster and Gritton (1986) provide a detailed account of the components of a SALTT class session. A session includes three major components: preliminaries, presentation, and practice. Rather than focusing on content material for an entire session, a significant period of time is spent performing relaxation, suggestion, and restimulation exercises. (p. 51).

The preliminary phase (about 10 percent of the class time) relaxes the students and prepares them to absorb new material. This involves mild physical relaxation exercises such as stretching. Next, students perform a mental relaxation task (e.g., watching their breathing) to take their minds off their day-to-day problems and attend to the teacher. Thereafter teachers perform a 'suggestive setup' to convince students that the learning will be fun, easy, efficient, and long-lasting. Students use guided imagery to recall a pleasant learning experience (e.g.,) Remember how you felt on your best-ever English test...Who [the] teacher [was]... How ... your stomach ...[felt]. These procedures might take three to ten minutes of an hour-long session, with more time required for the first two sessions. (p. 51).

The presentation phase (about 40 percent of the lesson) presents the material in a dramatic, dynamic way and then reviews it passively with background music. This phase has three components. The first, preview, gives the student the big picture, providing advanced organizers as to how the current lesson fits into the entire course and the specific behavior (p. 51) objectives of the lesson (Ausubel, 1960). The preview typically requires only a few minutes. The second component, dramatic presentation, presents the material in a dynamic way. Students are strongly encouraged to make vivid images relating to the material to be learned. They generate images on their own and actively deal with the material. For example, to learn programming, they imagine themselves as a computer sequentially executing instructions. This component might take 20 minutes of a class. The third component involves passive review with music. The instructor rhythmically repeats key material while playing baroque music in the background. The rhythm of the words and the sound of the music are assumed to produce a special mental condition that accelerates learning. This might encompass 15 minutes of an hour-long session. (p. 52) .

The third phase of a SALTT session is practice, which entails 50 percent of the lesson. There are three components. The first, activation of the knowledge, involves using the knowledge described in the presentation phase. For example, in a foreign language class, there might be a choral reading of the material. The second component is elaboration, which involves having the student use the material in new and different ways. In a foreign language class, students are given foreign language names and perform interactive procedures such as ordering a meal in the new language. Error correction is often indirect (e.g., the teacher does not say that a foreign phrase was wrong but rather immediately uses the phrase correctly). The third component is the use of frequent quizzes. The questions generally assess information that has been presented several times. The students are provided the answers to the quizzes and scores are generally not used to determine class grades. (p. 52).

"Support for Traditional Instructional Components" is rationalized from results of SALT effectiveness using the context of conventional pedagogy. This rationale is in part due to the fact that none of the reviewers ever experienced an accelerative learning lesson or class. The reviewers are thus left to account for the research findings using information from their own traditional backgrounds.

The majority of the time in a SALTT classroom is spent in activities that are typical in the classsrooms of expert teachers and have substantial psychological support. Although 10 minutes of a SALTT class session may be occupied with nontraditional tasks (relaxation exercises and review with music), perhaps 50 minutes are spent engaged in component tasks (elaboration, generation, imagery, repetition, and frequent testing) that clearly benefit instruction in standard laboratory experiments. (p. 53).

Generation and Elaboration. A SALTT class session typically presents fewer instructor-generated elaborations of the material and encourages more student-generated elaborations. Research in reading comprehension indicates that students benefit little from author-generated elaborations, and such elaborations may even impede the learning of facts. In contrast, student-generated elaborations enhance learning;... students who read author elaborated chapters from college textbooks did consistently worse than students who read only chapter summaries, which were one-fifth as long. (p. 53).

From this perspective, the SALTT strategy of presenting a short preview, dramatic presentation and review (during the presentation phase), followed by an extensive practice phase involving student-generated images and elaborations is likely to be superior to a single presentation by the instructor with extensive instructor-generated elaborations. Study of the 'generation effect' (e.g., Slamecka and Graf, 1978) has shown that students learn far more by actively generating answers (e.g., solving simple anagrams) than by passively reading or listening to material. (p. 53) .

Spacing of Repetitions. SALTT lessons repeat material more frequently and with substantial spacing relative to typical college (p. 53) courses. Critical material is presented during the presentation, review, activation, elaboration, and test phases of the experiment. The literature on spacing and repetition effects... shows that long-term memory can be greatly increased by repeating the material under optimal spacing conditions rather than presenting it once or under massed conditions. (p. 54).

Imagery. SALTT procedures emphasize the use of imagery. Imagery has long been employed by mnemonists (Luria, 1969) and can generally improve long-term memory for concrete objects (Paivio, 1971; Paivio and Desrochers, 1979). (p. 54).

Songs and Rhythm as Mnemonic Devices. The use of song and rhythm has been shown to improve recall. In a SALTT foreign language class for lawyers, students sing the elements of a contract (Stockwell, 1986). The rhyming information embedded in such songs provides an extra cue that may facilitate learning. (p. 54).

Cooperative Learning. SALTT classes frequently break up into groups in which students cooperatively utilize the material. Cooperative teaching has been shown to be effective in enhancing instruction in the educational literature....(p.54).

Advanced Organizers. SALTT instructors are encouraged to present 'advanced organizers' to give students an overview of how the material to be learned relates to previous material. Advanced organizers have been shown to enhance the learning of reading material (Mayer, 1979). (p. 54) .

Tests as Motivational Devices and Learning Events. SALTT instructors employ daily quizzes. Frequent testing has long been recognized as a factor in maintaining subject effort in animals and humans (e.g., Adams, 1980). But SALTT procedures do not overdo testing, as is frequently done with programmed instruction. When tested too often, students are encouraged to read passively, forfeiting the benefits of generation and elaboration. (p. 54).

A review of published SALT documentation is discussed in a "Review of the SALTT Learning Literature:

"There is an extensive published literature on accelerated learning techniques (at least three major books and over

2,800 pages of journal articles). ...In a [meta-analysis] review of the field, L.L. Palmer (1985) found that... about half the studies report statistics... [related directly to non-foreign language public school applications, and that effect of SALTT with special needs students increases the rate of learning a factor of two to four times in comparison to normal students]. (p. 55).

Musical suggestive techniques may be helpful in counteracting certain phobias (e.g., math or computer anxieties) that inhibit learning in problem populations. An individual with a strong phobia may learn little in a traditional class; treating the phobia may greatly accelerate his or her learning. Klockner [1984] reports a fivefold improvement in learning for her students. Given that a student may be unwilling to practice in a traditional classroom, and hence learning may be near zero, proportionally large improvements may occur." (p. 55).

Schuster (1976a) taught students with two hours of lectures per week compared with six hours in the control conditions. He found that the groups were not significantly different. (p.56).

...In a 15-minute learning study, Bordon and Schuster (1976) found that SALTT-taught students recalled 2.5 times as many paired associates as controls. ...Unusual procedures such as SALTT can motivate them to perform well. ... (p.57).

"DIRECTION AND DESIGN OF FUTURE RESEARCH" are discussed:

Accelerated learning procedures provide packaged educational programs that incorporate traditional and nontraditional instructional elements... Accelerated learning approaches deal with multiple aspects of instruction, including teacher motivation, student motivation, material presentation, elaboration and assessment. This attempt to deal with the whole range of instructional issues is not typical for most instructional interventions (e.g., computer-assisted instruction). (p. 59).

The Army can...distill components of cognitive psychology and accelerated learning to apply them to Army training. It should monitor and support research to identify procedures that reliably enhance learning. Additional basic research is needed to produce guidelines for instruction (e.g., how often should a component skill be practiced, with what spacing and elaboration, to be useful a year after the training course ends?). It is important that new procedures evaluate the interaction of quality of instruction, practice, study time, motivation of the learner, and matching of the training paradigm to the job demands. In addition, the Army should evaluate its own training programs to identify the transferrable elements of effective instruction to other instructors and training procedures. (p. 59).

...careful application and extension of cognitive science and instructional principles could bring about a substantial enhancement of training effectiveness. (p.60).

In a "Summary of Techniques: Theory, Research, and Applications," discussion continues under the heading, "Theory and Assumptions:"

The techniques permit content material to bypass traditional emotional blockages and antisuggestive barriers and go directly into long-term memory areas of the brain. The same information is routed simultaneously to different regions of the brain, producing information gain rather than the information losses of the forgetting curve. ...Retention is greater over time. (p. 236).

SALTT related comments follow under a variety of headings:

"Key Elements" are:
Relaxation, guided (pleasant) imagery, concentration, and suggestion combined--the package is what counts. (p. 236).

"Tasks and Designs" are:
Classroom instruction in conjunction with courses and foreign language training institutes. Omnibus evaluation experiments involve treatment versus no-treatment packages. (p. 237).

"Performances Assessed" are:
Classroom learning, including reading comprehension, course content (emphasizes gain scores in before-after designs), foreign language learning, [and experimental-control group studies] (p. 237).

"Examples of Results" are:
(1) Pretest-to-posttest improvements in science performance; (2) increases in pleasantness ratings, self-motivation ratings, and task commitment appraisals. (p. 237).

"Applications" are:

A relaxed approach to new materials, overcoming learning blocks in foreign languages. (p. 237).

"Guided Imagery or Rehearsal" are:

"Mental practice is beneficial because it serves either to give the performer a chance to rehearse the sequence of movements as symbolic task components or to provide a preparatory set by focusing attention and lowering sensory threshold...(p. 237).

Readers may discover other positive statements in this book, and the author requests that those references be reported in order to create the most complete file possible. This extract is intended to save most readers the time and trouble of extracting this imbedded material. Readers now have an extremely authoritative set of sources to quote as background for the scientific foundations of SALTT.

For researchers, this book contains other important and useful information, and a review of this book is recommended in order to extract the many research questions which are raised by the committee as possible topics for grants and research projects which may be planned by SALT practitioners and researchers.

The following background papers should be requested because of the theoretical background and the many references to research articles which compose a scientific background for SALTT:

Harris, M. J. and R. Rosenthal. "Interpersonal Expectancy Effects and Human Performance Research."

Slavin, R. E. "Principles of Effective Instruction."

These articles may be ordered directly (no cost given) from:

Publication on Demand Program,
National Academy Press
2101 Constitution Avenue, NW
Washington, D.C. 20418

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El autor ha extraido muchos comentos positivos e informes del libro *El Aumentar de Ejecución Humana* por la US National Research Council. Esta información sea muy útil en el planeamiento de investigación y la preparación de propuestas.

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